

**PROPOSED BUFFALO PLAZA ON PLOT L.R. NO. 37/262/1  
NAIROBI WEST-NAIROBI COUNTY**

**FOR**

**NYATI SACCO LIMITED**

**SPECIFICATIONS AND BILLS OF QUANTITIES**

**FOR**

**SUPPLY, INSTALLATION, TESTING AND COMMISSIONING**

**OF**

**ELECTRICAL INSTALLATION WORKS**

**ARCHITECT**

Dama Services Limited,  
P.O. Box 9656-00100  
Nairobi  
Email:[damaservices@gmail.com](mailto:damaservices@gmail.com)

**ELECTRICAL ENGINEER**

FluidSystem Engineers Limited,  
P.O. Box 41309-00100  
Nairobi  
Email:[fluidsystemengineers@gmail.com](mailto:fluidsystemengineers@gmail.com)

**QUANTITY SURVEYOR**

Integra Consulting Limited  
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Nairobi  
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**MECHANICAL ENGINEER**

Fluidsystem Engineers Limited,  
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**STRUCTURAL ENGINEER**

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**CLIENT**

Nyati Sacco,  
P.O. Box 7601 –  
00200NAIROBI  
Email: [info@nyatisacco.co.ke](mailto:info@nyatisacco.co.ke)

**JANUARY, 2022**

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SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF ELECTRICAL  
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## DEFINITIONS

The following terms and expressions used in the contract document shall have the following meanings:

The Employer: Nyati Sacco  
Represented by: Board of Management

ARCHITECT shall mean Dama Services Limited

ELECTRICAL ENGINEER shall mean Fluidsystem Engineers Limited,

QUANTITY SURVEYOR shall mean Integra Consulting Limited

MECHANICAL ENGINEER shall mean Fluidsystem Engineers Limited,

STRUCTURAL ENGINEER shall mean Inticom Limited

Employer's representative: This shall mean the Project Manager and shall be Dama Services Limited,

Main contractor The firm appointed to carry out the builders works.

Contractor: The firm appointed to carry out the supply, delivery, installation, testing and commissioning of Electrical Installation works

Site: Nairobi

**NOTES TO ALL TENDERERS;**

1. The tenderer is required to check the number of pages in this document and should any be found to be missing or the figures indistinct, he must inform the Engineer at once and have the same rectified. Should the tenderer be in doubt the precise meaning of any item, word or figure. Or for any reason whatsoever observe any apparent omission of words or figures, he must inform the Engineer in order that the correct meaning may be decided upon before the date for the submission of the tenders.
2. No liability whatsoever will be admitted nor claim allowed in respect of errors in the completed tender due to mistakes in this document which should have been rectified in the manner described above.
3. The tenderer shall not otherwise qualify the text of this specification. Any alteration or qualification made without authority will be ignored and the text of the specification as printed will be adhered to.
4. The tenderer shall be deemed to have made allowances in his unit prices generally to cover items of preliminaries or additions to prime cost Sums or other items. If those have not been priced against the respective items.
5. The tenderer's price shall include all government taxes including duties, VAT, etc which must be included in the rates. No claims whatsoever will be allowed in respect of duties, VAT etc if the tenderer does not price them as aforementioned.
6. In no case will expense incurred by the tenderer in preparation of this tenderer be reimbursed.
7. The copyright of this specification is vested in the Engineer and no part thereof may be reproduced without their express permission, given in writing.
8. The Sub-Contractor shall be solely responsible for the accurate ordering of materials in accordance with the drawings and these specifications.
9. The specifications must be priced in Kenya Shillings
10. This is a fixed price Contract and no claims shall be entertained on whatever ground. The sub-contractor is advised to include all such costs as he projects may arise in his unit rates. Any variations in the exchange rate will also be no excuse for any variations in the contract sum.

Signed (As in form of Tender) .....

Date/Stamp .....

FORM OF TENDER

To: The Chief Executive  
Officer, Nyati Sacco,  
P.O. Box 7601 –  
00200 NAIROBI

Dear Sir,

**SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF SUPPLY,  
INSTALLATION, TESTING AND COMMISSIONING OF ELECTRICAL INSTALLATION  
WORKS FOR THE PROPOSED CONSTRUCTION OF BUFFALO PLAZA ON LR 37/262/1**

1. In accordance with the Instructions to Tenderers, Conditions of Contract, Specifications and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of:

Kshs ..... *[Amount in figures]*

Kenya Shillings.....*[Amount in words]*

- 2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Employer’s Representative’s notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.
- 3. We agree to abide by this tender for **a period of 120 days from the date of tender opening** and shall remain binding upon us and may be accepted at any time before that date.
- 4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.
- 5. Understand that you are not bound to accept the lowest or any tender you may receive.

Dated this ..... day of .....20.....

Signature .....in the capacity of .....

duly authorized to sign tenders for and on behalf of:

.....*[Name of Tenderer ]*

of.....*[Address of Tenderer ]*

**FORM OF TENDER SECURITY**

WHEREAS

.....(her  
einafter called “the Tenderer”) has submitted his tender dated ..... For  
thesupply, delivery, installation, testing and commissioning of electrical installation works  
for the Proposed Construction of Buffalo Plaza on 37/262/1

KNOW ALL PEOPLE by these presents that WE .....  
Having our registered office at .....  
(hereinafter called “the Bank’), are bound unto .....  
(hereinafter called “the Employer”) in the sum of Kshs.....  
for which payment will and truly to be made to the said Employer, the Bank/Insurance  
binds itself, its successors and assigns by these presents sealed with the Common Seal of the  
said Bank this .....Day of .....20 .....

THE CONDITIONS of this obligation are:

- 1. If after tender opening the Tenderer withdraws his tender during the period oftender validity specified in the instructions to Tenderers

Or

- 2. If the Tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:
  - (a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or
  - (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by his is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force for a period of 150 days from the date of tender opening, and any demand in respect thereof should reach the Bank not later than the said date.

.....  
*(Date)*

.....  
*(Signature of the Bank)*

.....  
*(Witness)*

.....  
*(Seal)*

**PART A:**

**PRELIMINARIES AND GENERAL CONDITIONS**

## PART A - PRELIMINARIES AND GENERAL CONDITIONS

### NAMES OF PARTIES

The following will be inserted in the Articles of Agreement:-

Architects:	<b>AS PER MAIN WORKS</b>
Engineer:	<b>AS PER MAIN WORKS</b>
Employer:	<b>AS PER MAIN WORKS</b>

### 2. DEFINITIONS OF TERMS

The terms, phrases and abbreviations shall be deemed to have the following meanings wherever used hereinafter and in all contract documents.

“Engineer” shall in the Electrical works mean ‘**project Electrical engineer**’ and, or in the event of any of their deaths, or ceasing to be the Engineers for the purposes of this Sub-contract, such other person as the client shall nominate for that purpose. For the purpose of **Electrical** engineering works the Engineer shall be deemed vested with the duties of, and be the representative of the Architect, except on respect of variations which involve the sub-contract sum.

“Main Contractor” shall mean the person or persons, partnership, firm or company, whose tender for the main contract has been accepted, and who has or have, signed the main contract and shall include his or their heirs, executors, administrators, assigned successors and duly appointed representatives. For the purposes of this work, the terms “Main Contractor” and “Contractor” shall have the same meaning.

“Sub-Contractor” shall mean the person or persons, partnership, firm or company, whose tender for the sub-contract for the electrical and mechanical works has been accepted, and who has or have, signed the sub-contract and shall include his or their heirs, executors, administrators, assigned successors and duly appointed representatives.

“Works” shall mean all or part of the works, material and articles, wherever the same are being manufactured or prepared, which are to be used in the execution of this sub-contract and whether the same may be on the site or not.



“Approved” shall mean approved by the Engineer/Architect at his absolute discretion.

“Directed” shall mean directed by the Engineer/Architect at; his absolute discretion.

“Selected” shall mean selected by the Engineer/Architect at his absolute discretion.

“M<sup>3</sup>” shall mean cubic metre

“M<sup>2</sup>” shall mean square metre

“M” shall mean linear millimetre

“Kg” shall mean Kilogram

“No.” shall mean

Number “Prs” shall mean

Pairs

“B.S.” shall mean the current British Standard Specification published by the British Standards institution, 2 Park Street, London, W.1. England

“As before” shall mean in all respects as earlier described in the same or previous bill

“Ditto” shall mean the whole of the preceding description except as qualified in the description. Where it occurs in descriptions of succeeding terms it shall mean the whole of the preceding description which is contained within the appropriate brackets.

“Fix Only” shall mean take delivery on site (unless otherwise stated), unload where necessary, transport within site compound, store, unpack, check contents against orders and packing lists, assemble as necessary, distribute to position, hoist and fix only.

### **3. TENDER CONDITIONS**

Any act of collusion that may distort normal competitive conditions may cause the rejection of the tenders concerned. By participating in the tendering, tenderers certify not to be involved in such acts of collusion.

Tenders containing abnormally high or low unit prices and /or lump sums may be rejected. Before such rejection, however the sub-contractor may be given the opportunity of giving a detailed explanation.

Tenders must be returned complete and tenderers, or their assigned representatives are at liberty to witness the tender opening at the time and venue stated in the letter of invitation to tender. Tenders received after the stated time will be returned unopened and incomplete tenders will be rejected.

Tenders are invited in strict accordance with the documents issued, counter offers submitted with tenders will not be considered, letters of qualifications with tenders may be ignored if they have the effect of modifying either the terms of a tender or the compatibility of a tender with the other tenders. However should a tenderer. In good faith wish to propose modifications to the tender terms, conditions and contents for the purposes of reducing the tender amount then he shall contact the Engineer in writing well before the date of tender opening. Should the Engineer approve the proposed modification, all tenderers will be advised in due time for the modification of their tenders. No proposed modification will be considered unless this procedure has been followed.

The client is not bound to accept the lowest or any tender, nor is the client bound to divulge reasons for the acceptance or non-acceptance of any tender. Any tender may be accepted by the client within the stated period unless previously withdrawn by the tenderer.

All deletions, additions and corrections to figures inserted in the tender document are to be counter signed by the tenderer.

In the event of two or more tenders being in the same sum, tenderers may be given 7 days within which to revise their tender prices. Should there again be two or more tenders in the same sum, and in the absence of any qualities to give one tenderer preference over the other(s), then the sub-contract may be awarded by drawing lots in the presence of the tenderers concerned.

#### **4. DESCRIPTION OF SITE**

The site of the works is within **Nairobi**. Due care will be required during construction so that the occupants and facilities in the adjacent premises and the premises themselves are not interfered with in any way.

The sub-contractor is recommended to visit the site and will be deemed to have satisfied himself with regard to the relevant details of preliminary. If the sub-contractor, for whatever reason, feels specialised attendance will be required, with significant financial implications or requires specialised mobilisation to start the works, he should spread the cost of such works in his unit rates.

No claims whatsoever by the sub-contractor for additional payment will be allowed on the grounds of any misunderstanding or misapprehension in respect of any such matters or otherwise, should the sub-contractor be required to offer specialised attendance prior to, or during, the performance of the contract.

#### **5. TENDER EVALUATION PROCEDURES**

Following the return of the tenders for the works measured in these bills of quantities, arithmetical and other analysis will be carried out in order to select the lowest acceptable tender in terms of responsive and realistic pricing, etc. This section will be at the sole discretion of the Employer.

The unit rates offered by the selected tenderer will then be applied to new quantities measured by the Engineer for the revised scope of works.

The resultant total, together with the priced preliminaries and any modified prime cost and provisional sums will be consolidated into a sum for which the sub-contract will be signed. This procedure will be applied only to the selected tender. Neither the Client nor the Consultants will enter into discussion or any correspondence with the other tenderers after the selection process has been carried out and no reasons will be given for selection or non-selection.

Any tenderer unable to comply with these procedures will be disqualified from the selection process

## **6. ACCESS TO SITE AND SECURITY**

Means of access to the site will be as directed by the Architect; no other access will be permitted in any circumstances.

## **7. AREA TO BE OCCUPIED BY THE SUB-CONTRACTOR**

Areas to be occupied by the sub-contractor for use as storage shall be as directed by the Project Architect.

## **8. DRAWINGS**

**8.1** The sub-contractor will be deemed to have examined the drawings before tendering and to have satisfied himself regarding their details and regarding the nature and extent of the works and the method of installation involved. No claims arising out of misapprehension in these respects will be allowed.

**8.2** The sub-contractor shall at his own risk and costs execute and perform the works described in the conditions of contract and bills of quantities and detailed in the drawings provided and supplied to the sub-contractor for the purpose of works and completely finish the said works in a good workmanship and with the utmost expedition.

**8.3** The sub-contractor shall satisfy himself as to the correctness of all drawings and measurements. If the sub-contractor finds any discrepancy in the drawing or between the drawing and the specifications he shall immediately refer the same to the Engineer who will decide which shall be followed.

Figured dimensions shall be taken in preference to the scale mentioned on or attached to any drawing. Details shown on drawings shall be taken in preference to items and quantities in the specification.

**8.4** Two copies of all drawings and of the specifications will be furnished free of cost to the sub-contractor (whose tender has been accepted) for his own use. Any extra copies will be paid for.

## **9. VALUATIONS OF LUMP SUMS AND PRELIMINARY COSTS**

Lump sums entered in these bills of quantities against any item of general condition or preliminaries will be included in appropriate valuations according to reasonable assessment of actual costs involved in the item.

## **10. PAYMENT FOR MATERIALS ON SITE**

All materials for incorporation in the works must be properly installed before payment is effected unless specifically exempted by the Engineer/Architect. This is to include the materials of the sub-contractor, and his nominated suppliers.

## **11. CONTRACT AGREEMENT AND CONDITIONS**

### **11.1 General**

The articles of Agreement and conditions shall be the agreement and schedule of conditions of building contract forms published by the Kenya Association of Building and Civil Engineering Contractors' (KABCEC).

### **11.2 Water and Electricity Supply**

The main contractor will make water and electrical power available to the **Electrical installation works** sub-contractor. The main contractor and the sub-contractor will mutually agree whether or not the latter should pay for the water /electricity used for the works. That notwithstanding, no excuse will be entertained for power failure or lack of water as the sub-contractor is required to make his own arrangements in such circumstances.

### **11.3 Sub-contractor's Materials**

Purchase of materials by the sub-contractor and their storage on site for inclusion in payment certificates far in advance of reasonable requirements may be allowed at the sole discretion of the Engineer. This however is also subject to availability of such storage space. Storage space may be provided on site.

## **12. WARRANTY AND PERFORMANCE STANDARDS**

The sub-contractor must furnish the client through the Engineer with a general written warranty covering quality of workmanship, material and equipment and be compelled thereby for a one year period after practical completion of the sub-contract.

The sub-contractor must make good, at his own expense, such repairs and replacements as may be required as a consequence of negligent workmanship or defective materials. The sub-contractor must also procure such warranties and guarantees as aforesaid from all manufacturers and/or suppliers of materials or equipment incorporated in the project under this contract.

The sub-contractor must comply in all respects with given standards of workmanship as defined and described in the specifications and Bills of Quantities and relevant codes of Practice. The sub-contractor must also comply with all tests of materials as required and/or directed by the Engineer.

**13. TOOLS, PLANTS, ETC**

The sub-contractor shall allow for providing of all ladders, tools, plant and transport required for the works, except in so far as may be specifically stated otherwise.

**14. SAFETY, HEALTH AND WELFARE OF WORKPEOPLE**

The sub-contractor shall allow for providing for the safety, health and welfare of workpeople and for complying with any relevant ordinances, Regulations or Union agreement.

**15. NATIONAL INSURANCE AND PENSIONS**

The Sub-contractor shall allow for making any National Social Security Fund payments due in respect of workpeople.

**16. HOLIDAY AND TRANSPORT OF WORKPEOPLE**

The sub-contractor shall allow for providing holidays and transport for workpeople and for complying with any relevant ordinances or union agreement.

**17. TRAINING LEVY**

The sub-contractor's attention is drawn to legal notice no. 237 of October, 1971, which requires payments by the sub-contractor of a training levy on all contracts of more than Shs. 50,000/= in value and his tender must include for all costs arising or resulting there from. Proof of payment of those training levies will be required.

**18. EXISTING PROPERTY**

The sub-contractor shall take every precaution to avoid damage to all existing property including flower beds, fences, roads, cables, office equipment, drains, adjacent buildings and other services and he will be held responsible for all damages arising from the execution of this sub-contract to the afore-mentioned property and he shall make good all such damage where directed at his own expenses to the satisfaction of the Engineer.

**19. TESTING**

The sub-contractor shall allow for all testing of material and installations required by these specifications and he shall be responsible for all expenses incurred in completing such tests, including costs of materials and labour, equipment, transport and all other costs.

## **20. SUPERVISION AND WORKING HOURS**

The works shall be executed under the direction, and to the entire satisfaction in all respects, of the Engineer who shall at all times during normal working hours have access to the works and to the yards and workshops of the sub-contractor or other places where work is being prepared for the sub-contractor.

The working hours shall be those generally worked by good employers in the building and civil engineering trades taking note of gazetted holidays unless the Engineer shall so direct.

No work shall be covered up in the absence of the clerk of works without the prior approval of the Engineer in writing.

## **21. SAMPLES**

The Sub-contractor shall furnish at his own cost any samples of materials or workmanship that may be called for by the Engineer for his approval or rejection and any further samples in the case of rejection until such are approved by the Engineer, and the Engineer may reject any materials or workmanship not in his opinion up to the approved samples.

The Engineer shall instruct for the testing of such materials as he may at his discretion deem desirable and the testing shall be made at the sub-contractor's cost. The sub-contractor shall allow in his tender for such samples and tests.

## **22. MATERIALS, TOOLS, PLANT ETC.**

All materials and workmanship used in the execution of works shall be of the best quality and description unless otherwise described. Any materials for the works condemned by the Engineer shall immediately be removed from the site at the sub-contractor's expense.

The sub-contractor shall provide at his own risk and cost all materials, scaffolding, tools, plant, transport and workmen required for the works except, insofar as may be stated otherwise herein.

The sub-contractor shall order all materials to be obtained from overseas immediately after the sub-contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that such materials are onsite when required for use in the works.

Any defects which may appear, either of materials or of workmanship, during the defects liability period provided by the sub-contract, shall be made good by the sub-contractor at his own expense, as and when directed.

If the sub-contractor shall fail to carry out such orders, as by the preceding paragraph provided within such reasonable time as may be specified in the order, the materials or works affected may be made good by others in such manner as the Engineer may direct, in which case the cost thereby incurred shall, upon the written certificate of the Engineer, be recovered from the sub-contractor as liquidated damages.

### 23. FOREMAN

The sub-contractor shall keep constantly on works a competent English-speaking foreman and any directions or explanations given by the Engineer to such a foreman shall be deemed to have been given to the sub-contractor.

### 24. INSURANCE

The sub-contractor shall during the execution of the works, insure himself and keep himself insured against all liability under the workmen's compensation act or any amendment thereto for accidents to workmen employed by him on the said works and shall hold the employer and all parties to the contract harmless in respect of any such liability.

The sub-contractor shall further insure himself and keep himself insured against all liabilities arising from all Third party claims arising from accidents and he shall hold the Employer, the Consultants and all parties to the contract harmless in respect of any such liabilities.

No payments on account of the work executed will be made to the sub-contractor until he has satisfied the Engineer either by the production of an Insurance Certificate that the foregoing provisions have been complied with in all respects.

Thereafter the Engineer may from time to time check that premiums are duly paid up by the sub-contractor who shall, if called upon to do so, produce receipts of premium renewals for the Engineer's inspection.

### 25. BOND

The sub-contractor shall find and submit for the approval by the Engineer one surety who shall be an established bank, Insurance company or fidelity guarantee corporation and who will be willing to be bound to the Employer in an amount equal to ten percent (10%) of the sub-contract amount for the due performance of the sub-contractor up to the date of completion as certified by the architect and who will then and if called upon, sign a bond to that effect, on the same day as the sub-contract agreement is signed. In the event of the surety named not being approved by the Engineer, the sub-contractor shall furnish within seven days another surety to the approval of the Engineer. This shall be complied with unless the **MAIN WORKS** deems the subcontract as **DOMESTIC** contract.

## **26. TIME FOR COMPLETION AND LIQUIDATED DAMAGES**

The sub-contractor shall proceed with the works in such manner and in such order, as the Engineer shall direct so as to complete the works on the shortest possible time.

It is the responsibility of the sub-contractor to ensure that all material, fittings, equipment and items to be supplied are ordered and delivered to the site ready for installation at such times as to cause no hold up to the programme of work.

NOTE: 1. The sub-contract completion period is the same as that of main contract.

2. Liquidated damages and Ascertained damages will be calculated pro-rata on the rate provided in the main contract.

## **27. PAYMENT AND CERTIFICATES**

Payments shall be made through certificates via the main contractor. All payments shall be less retention as specified in the sub-contract agreement. The sub-contractor shall be paid only for work done and /or materials on site.

The percentage of certified value retained should be 10%. Limit of Retention shall be a sum equivalent to 5% of the sub-contract sum.

Prices quoted shall include 16% VAT and 3% withholding tax and all taxes applicable at the time of tender.

No certificate so issued by the Engineer/Architect shall in itself be considered conclusive evidence as to the sufficiency of any work or materials to which the terms and conditions of this agreement or from his liability to make good all defects as provided thereby.

## **28. CONDITIONS OF SUB-CONTRACT, ETC**

The sub-contract agreement shall be based on KABCEC conditions. FIDIC conditions for electrical and mechanical works shall form complementary reference where clear interpretation cannot be made.

## **29. BLASTING**

Blasting will not be allowed unless with express authority of the Engineer.

## **30. HOISTING**

The sub-contractor is referred to the Drawings and to the general description of the building. Throughout these specifications generally no mention is made of heights for hoisting.



All prices must include for hoisting and fixing at any level within the limits shown on the drawings or included in the general description of works. Where a particular level is specified the sub-contractor shall price accordingly.

**31. CASING UP AND PROTECTING**

The sub-contractor shall be responsible for casing up or otherwise protecting to the satisfaction of the Engineer all parts of the sub-contract works liable to cause injury and for removing such protection and making good on completion.

**32. WORKS TO BE DELIVERED UP CLEAN**

On completion of the works, the site and the works shall be cleared of all plant, scaffolding, rubbish and unused materials and shall be delivered up in a clean and perfect condition in every respect to the satisfaction of the Engineer.

**33. DEFECTS LIABILITY PERIOD**

The defects liability period shall be as provided in the main contract.

**34. CLAIMS FOR EXTRAS**

This is a fixed price contract and no claims whatsoever on extras will be entertained.

**35. TRADE NAMES**

Where trade names of manufacturer's catalogue numbers are mentioned in these specifications the reference is intended, as a guide to the type of the article or material required. The sub-contractor may use any article or material equal in type or quality to those therein described subject to the prior approval of the Engineer, and at his (Engineer's) absolute discretion. The onus of proof as to equivalent quality will rest with the sub-contractor, whose tender will be deemed to include for the makes described hereafter.

**36. FLUCTUATIONS**

This is a fixed price sub-contract and claims shall not be allowed on fluctuations.

## TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in 3 stages, namely:

1. Preliminary evaluation
2. Technical Evaluation; and
3. Financial Evaluation.

### STAGE 1: PRELIMINARY EXAMINATION

This stage of evaluation shall involve examination of the mandatory requirements as set out in the Tender Advertisement Notice or Letter of Invitation to tender and any other conditions as stated in the bid document.

These conditions include the following:

- i. Current **Category of Registration** and **Valid Practising Licenses** with National Construction Authority (NCA) for the category as listed below.  
    **“NCA 4”** and above in the **Electrical Class of works**
- ii. Fully filled technical schedule for Compliance with Technical Specifications
- iii. Proof of payment for tender document if required;
- iv. The Bid has been submitted in the format required by the procuring entity for the bidder (and all joint venture bids);
- v. Provision of a tender Security that is in the required form, amount and that the tender security is valid for the period required; (1% of the quoted sum)
- vi. Fully filled Form of Tender for the bidder (and all joint venture bids contractors);
- vii. Valid Tax Compliance Certificate for the bidder (and all joint venture bids contractors);
- viii. Fully filled Confidential Business Questionnaire (and all joint venture bids contractors);
- ix. Fully signed Statement of Compliance (and all joint venture bids contractors);
- x. One Number Bid Document for the bidder (and for joint venture one number bid having all the sub bids);
- xi. Signed Pre-tender site visit form if pre-tender site visit is required;
- xii. Proof of authorization shall be furnished in form of a written power of attorney which shall accompany the tender if the signatory to the tender is not a director of the company (provide name and attach proof of citizenship of the signatory to the tender). Provide also Form CR12 from the Registrar of Companies.
- xiii. A copy of valid business permit for the bidder (and all joint venture bids);

- xiv. A copy certificate of registration/Incorporation for the bidder (and all joint venture bids);
- xv. A copy pin certificate for the bidder (and all joint venture bids);
- xvi. A copy of company's list of directors, beneficial owners, name if proprietor or names of partners (copy of CR 12) for the bidder (and all joint venture bids);
- xvii. Signed and signed statement of verification that no debarment in matters of public procurement proceedings for the bidder (and all joint venture bids);
- xviii. Declaration that the firm has not been convicted of corrupt or fraudulent practices and will not engage in any corrupt or fraudulent practices for the bidder (and all joint venture bids);

**STAGE 2: TECHNICAL EVALUATION**

The tender document shall be examined based on clause 2.2 of the Instruction to Tenderers which states as follows:

*‘The tenderers will be required to provide evidence for eligibility of the award of the tender by satisfying the employer of their eligibility under Instruction to Tenderers and their capability and adequacy of resources to effectively carry out the subject contract. In order to comply with provisions of Instruction to Tenderers, the tenderers shall be required;*

- a) To fill the Standard Forms provided in the bid document for the purposes of providing the required information. The tenderers may also attach the required information if they so desire;*

<b>PARAMETER</b>	<b>MAXIMUM POINTS</b>
(i) Compliance with Technical Specifications-----	40
(ii) Key personnel -----	20
(iii) Contract Completed in the last Four (4) years -----	18
(iv) Audited Financial Report for the last 3 years -----	10
(v) Evidence of Financial Resources -----	12
<b>TOTAL</b>	<b>100</b>

The pass-mark under the Technical Evaluation is 70 percent. Any bidder who scores below the pass mark will be considered non responsive

**STAGE 2 - TECHNICAL EVALUATION**

Item	Description	Point Scored	Max. Point
	<p><b>Director of the firm</b>                      Holder of degree in Architectural, Quantity surveying or Engineering field                      (attach degree certificate) -----5</p> <p>Holder of diploma in any of the above fields                      (attach diploma certificate)----- 4</p> <p>Holder of certificate in in any of the above fields                      (attach craft certificate) ----- 3</p> <p>No relevant certificate-----0</p>		5
	<p><b>Project supervisor</b>                      Holder of degree in Electrical Engineering field                      (attach degree certificate) -----5</p> <p>Holder of diploma in Electrical engineering field                      (attach diploma certificate)----- 4</p> <p>Holder of certificate in Electrical engineering field                      (attach craft certificate) ----- 3</p> <p>No relevant certificate-----0</p>		5

	<p><b>Project skilled staff(2no.officers)</b></p> <p>Holder of degree in Electrical Engineering field (attach degree certificate) ----- 2 each</p> <p>Holder of diploma in Electrical engineering field (attach diploma certificate) ----- 3 each</p> <p>Holder of certificate in Electrical engineering field (attach craft certificate) ----- 5 each</p> <p>No relevant certificate-----0</p>		<p><b>10</b></p>
	<p><b>A Minimum of three (3) projects of similar nature, complexity and magnitude completed within the last five (5) years from the date of tender opening (Attach signed project completion certificates)</b></p> <p>projects of a value more than 70% and above of contract price quoted for this project @ 6 marks each</p> <p>projects of a value of a value between 50% - 69% of contract price quoted for this project @ 5 marks each</p> <p>projects of a value of a value between 20% - 49% of contract price quoted for this project @ 2 marks each</p> <p>projects of a value of a value between 1% - 19% of contract price quoted for this project @ 1 marks each</p> <p>no projects @ 0 marks</p>		<p><b>18</b></p>

	<p><b>Audited financial report</b>  <b>Attach Audited financial report for the last two (2) years (2019 and 2020) or (2020 and 2021) whichever is the latest. The Audited Financial Reports are valid only when be signed and stamped by a registered Accountant or Audit Firm registered and recognized in Kenya. indicate the current ratio for each year</b></p> <p>Has current ratio over 2  @ 5 marks for each year</p> <p>Has current ratio of between 2 and 1.5  @ 4 marks for each year</p> <p>Has current ratio of between 1.5 and 1  @ 3 marks for each year</p> <p>Has current ratio of between 1 and 0.7  @ 2 marks for each year</p> <p>Has current ratio of less than 0.7  @ 1 marks</p> <p>Has not indicated current ratio  @ 0 marks</p>		<b>10</b>
	<p><b>Financial Resources</b>  <b>Attach record of cash in hand in form of certified bank statement or Current letter (dated 2021 or 2022) from the bidders' bankers and level of overdraft or credit limits allowed.</b></p> <p>Has financial resources of a value of 100% and above of contract price quoted for this project @ 12 marks</p> <p>Has financial resources of a value of a value between 99% - 90% of contract price quoted for this project @ 5 marks each</p>		<b>12</b>

	<p>Has financial resources of a value less than 90% of contract price quoted for this project @ 2 marks</p> <p>Has no financial resources @ 0 marks</p>		
	<p><b>Compliance with technical specifications</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has submitted relevant technical brochure/catalogues</li> <li><input type="checkbox"/> Has highlighted the Catalogue Number if many options for the same item are on the attached catalogue</li> <li><input type="checkbox"/> Fulfill the tender specifications in terms of Standards of manufacture; Performance ratings/characteristics;</li> </ul> <p>a) Has fully complied with the technical specifications @ 40 marks</p> <p>b) Has not complied with the technical specifications @ 0 marks</p>		<b>40</b>

*Current ratio = current assets/current liabilities*

**Any bidder who scores 70 points and above in this Technical Evaluation shall be considered for further evaluation**



### STAGE 3 - FINANCIAL EVALUATION

Upon completion of the technical evaluation a detailed financial evaluation for the bidder (and all their joint venture partners) shall follow.

The evaluation shall be in three stages

- a) Determination of Arithmetic Errors for the bidder (and all their joint venture partners);
- b) Comparison of Rates for the bidder (and all their joint venture partners);  
; and
- c) Consistency of the Rates for the bidder (and all their joint venture partners);

#### A) Determination of the Arithmetic Errors

Arithmetic Errors will be corrected by the Procuring Entity as follows:

- i) In the event of a discrepancy between the amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of tender shall prevail. Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, the tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity;
- ii) Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works
- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuations of variations.

#### B) Comparison of rates for the bidder (and all their joint venture partners)-

Items that are underpriced or overpriced may indicate potential for non-delivery and front loading respectively. The committee shall promptly write to the tenderer asking for detailed breakdown of costs for any of the quoted items, relationship between those prices, proposed construction/installation methods and schedules.

The evaluation committee shall evaluate the responses and make an appropriate recommendation to the procuring entity's tender committee giving necessary evidence. Such recommendations may include but not limited to:

- a) Recommend no adverse action to the tenderer after a convincing response;
  - b) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
  - c) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.
- C) Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates for similar items.

#### **STAGE 4 - RECOMMENDATION FOR AWARD**

SECTION NAME:

**PART B: GENERAL ELECTRICAL SPECIFICATIONS**

## GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

- 2.1 General
- 2.2 Standard of Materials
- 2.3 Workmanship
- 2.4 Procurement of Materials
- 2.5 Shop Drawings
- 2.6 Record Drawings
- 2.7 Regulations and Standards
- 2.8 Setting out Works
- 2.9 Position of Electrical Plant and Apparatus
- 2.10 M.C.B Distribution Panels and Consumer Units
- 2.11 Fused Switchgear and Isolators
- 2.12 Conduits and Conduit Runs
- 2.13 Conduit Boxes and Accessories
- 2.14 Labels
- 2.15 Earthing
- 2.16 Cables and Flexible Cords
- 2.17 Armoured PVC Insulated and Sheathed Cables
- 2.18 Cable Supports; Markers and Tiles
- 2.19 PVC Insulated Cables
- 2.20 Heat Resisting Cables
- 2.21 Flexible Cords

- 2.22 Cable Ends and phase Colours
- 2.23 Cable Insulation Colours
- 2.24 Sub-circuit Wiring
- 2.25 Space Factor
- 2.26 Insulation
- 2.27 Lighting Switches
- 2.28 Sockets and Switched sockets
- 2.29 Fused Spur Boxes
- 2.30 Cooker Outlets
- 2.31 Connectors
- 2.32 Lampholders
- 2.33 Lamps
- 2.34 lighting Fittings Street lighting Lanterns
- 2.35 Position of Points and Switches
- 2.36 Street/Security Lighting Columns
- 2.37 Timing Control Switch
- 2.38 Wiring System for Street Lighting
- 2.39 Metal control Pillar
- 2.40 Current Operated Earth leakage circuit breaker
- 2.41 MV Switchboard
- 2.42 Steel Conduits and Steel Trunking
- 2.43 Testing on Site

## **2.1 SHOP DRAWINGS**

Before manufacture or Fabrication is commenced the sub-contractor shall submit Two copies of detailed drawings of all control pillars, meter cubicles, medium voltage switchboards including their components showing all pertinent information including sizes, capacities, construction details, etc, as may be required to determine the suitability of the equipment for the approval of the Engineer. Approval of the detailed drawings shall not relieve the sub-

contractor of the full responsibility of errors or the necessity of checking the drawings himself or of furnishing the materials and equipment and performing the work required by the plans and specifications.

## **2.2 RECORD DRAWINGS**

These diagrams and drawings shall show the completed installation including sizes, runs and arrangements of the installation. The drawings shall be to scale not less than 1 :50 and shall include plan views and section.

The drawings shall include all the details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams relating to operating and maintenance instructions shall be framed and, mounted in a suitable location.

## **2.3 REGULATIONS AND STANDARDS**

All work executed by the Sub-contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, and with the Regulations of the Local Electricity Authority.

Where the two sets of regulations appear to conflict, they shall be clarified with the Engineers. All materials used shall comply with relevant Kenya Bureau of Standards Specification.

## **2.4 SETTING OUT WORK**

The sub-contractor at his own expenses; is to set out works and take all measurements and dimensions required for the erection of his materials on site; making any modifications in details as may be found necessary during the progress of the works, submitting any such modifications or alterations in detail to the Engineer before proceeding and must allow in his Tender for all such modifications and for the provision of any such sketches or drawings related thereto.

## **2.5 POSITIONS OF ELECTRICAL PLANT AND APPARATUS**

The routes of cables and approximate positions of switchboards etc, as shown on the drawings shall be assumed to be correct for purpose of Tendering, but exact positions of all electrical Equipment and routes of cables must be agreed on site with the Engineer before any work is carried out.

## **2.6 MCB DISTRIBUTION PANELS AND CONSUMER UNITS**

All cases of MCB Panels and consumer units shall be constructed in heavy gauge sheet with hinged covers.

Removable undrilled gland plates shall be provided on the top and bottom of the cases. Miniature circuit breakers shall be enclosed in moulded plastic with

the tripping mechanism and arc chambers separated and sealed from the cable terminals.

The operating dolly shall be tripfree with a positive movement in both make and break position. Clear indication of the position of the handle shall be incorporated.

The tripping mechanism shall be on inverse characteristic to prevent tripping in temporary overloads and shall not be affected by normal variation in ambient temperature.

A locking plate shall be provided for each size of breaker; A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with a sheet of perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate MCB ratings shall be stated on the circuit chart against each circuit in use: Ivorine labels shall be secured to the insulation barriers in such a manner as to indicate the number of the circuits shown on the circuit chart. Insulated barriers shall be fitted between phases, and neutrals in all boards, and to shroud live parts.

Neutral cables shall be connected to the neutral bar in the same sequence as the phase cables are connected to the MCB's. This shall also apply to earth bars when installed.

## **2.7 FUSED SWITCHGEAR AND ISOLATORS**

All fused switchgear and isolators whether mounted on machinery, walls or industrial panels shall conform to the requirements of KS 04 – 226 PART: 1: 1985.

All contacts are to be fully shrouded and are to have a breaking capacity on manual operations as required by KS 04 – 182 : 1980.

Fuse links for fused switches are to be of high rupturing capacity cartridge type, conforming to KS 04 – 183 : 1978.

Isolators shall be load breaking/fault making isolators.

Fused switches and isolators are to have separate metal enclosures. Mechanical interlocks are to be provided between the door and main switch operating mechanism so arranged that the door may not be opened with the switch in the 'ON' position. Similarly; it shall not be possible to close the switch with the door open except that provision to defeat the mechanical interlock and close the switch with the door in the open position for test purposes. The 'ON' and 'OFF' positions of all switches and isolators shall be clearly indicated by a mechanical flag indicator or similar device. In T.P & N fused switch units, bolted neutral links are to be fitted.

## **2.8 CONDUITS AND CONDUIT RUNS**

Conduit systems are to be installed so as to allow the loop-in system of wiring:

All conduits shall be black rigid super high impact heavy gauge class 'A' PVC in accordance with KS 04 – 179: 1988 and IEE Regulations. No conduit less than 20mm in diameter shall be used anywhere in this installation.

Conduit shall be installed buried in plaster work and floor screed except when run on wooden or metal surface when they will be installed surface supported with saddles every 600mm. Conduit run in chases shall be firmly held in position by means of substantial pipe hooks driven into wooden plugs.

The Sub-contractors attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes.

All conduits systems shall be arranged wherever possible to be self-draining to switch boxes and conduit outlet points for fittings:

The systems, when installed and before wiring shall be kept plugged with well fitting plugs and when short conduit pieces are used as plugs, they shall be doubled over and tied firmly together with steel wire; Before wiring all conduit systems shall be carried out until the particular section of the conduit installation is complete in every respect.

The sets and bends in conduit runs are to be formed on site using appropriate size bending springs and all radii of bends must not be less than 2.5 times the outside diameter of the conduit. No solid or inspection bends, tees or elbows will be used.

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and water tight by solution. The tube and fittings must be clean and free of all grease before applying the adhesive. When connections are made between the conduit and switch boxes, circular or non-screwed boxes, care shall be taken that no rough edges of conduit stick out into the boxes.

Runs between draw in boxes are not to have more than two right angle bends or their equivalent . The sub-contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily withdrawable and the sub-contractor may, at no extra cost to the contract; be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer, shall be obtained. The sub-contractor shall be responsible for marking the accurate position of all holes, chases etc, on site, or if the Engineer so directs, shall provide the Main Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the sub-contractor fail to inform the main contractor of any inaccuracies in this respect they shall be rectified at the sub-contractors expense.

It will be the Sub-contractors responsibility to ascertain from site, the details of reinforced concrete or structural steelwork and check from the builder's drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written permission of the Structural Engineer.



The drawings provided with these specifications indicate the appropriate positions only of points and switches, and it shall be the Sub-Contractors responsibility to mark out and centre on site the accurate positions where necessary in consultation with the Architect and the Engineer. The sub-contractor alone shall be responsible for the accuracy of the final position.

## **2.13 CONDUIT BOXES AND ACCESSORIES**

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC manufactured to KS 04 – 179 : 1983

Small circular pattern boxes are to be used with conduits up to and including 25mm outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used:

Boxes are to be not less than 50mm deep and of such dimensions as will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the sub-contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall be fitted flush with ceiling and if necessary fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are to be of PVC or mild steel (of not less than 12swg) and black enamelled or galvanised finish according to location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws; No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit entering it. Conduits shall only enter boxes by means of conduit bushes.

## **2.14 LABELS**

Labels fitted to switches and fuseboards;-

- (i) Shall be Ivorine engraved black on white.
- (ii) Shall be secured by R.H brass screws of same manufacturing throughout.
- (iii) Shall be indicated on switches:-
  - a) Reference number of switch
  - b) Special current rating
  - c) Item of equipment controlled

- (iv) Shall indicate on MCB panels
  - a) Reference number
  - b) Type of board, i.e., lighting, sockets, etc.,
  - c) Size of cable supplying panel
  - d) where to isolate feeder cable
- (v) Shall be generally not less than 75mm x 50mm.

## 2.15 EARTHING

The earthing of the installation shall comply with the following requirements:-

- (i) It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by Institute of Electrical Engineers of Great Britain.
- (ii) At all main distribution panels and main service positions a 25mm x 3mm minimum cross sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.
- (iii) The earth tape in Sub-clause (ii) shall be connected by means of a copper tape or cable of suitable cross sectional area to an earth electrode which shall be a copper earth rod (see later sub-clause).
- (iv) All tapes to be soft high conductivity copper, untinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided
- (v) Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purposes.
- (vi) Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and installation is carried out in accordance with the figures stated in the current edition of the I.E.E Regulations.
- (vii) Where an earth rod is specified (see Sub-clause (iii) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6m . It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.
- (viii) Earth plates will not be permitted
- (ix) Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the IEE Regulations, by the Sub-Contractor in the presence of the Engineer and the Sub-Contractor shall be responsible for the supply of all test equipment.
- (x) Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings, shall be made using purpose made plugs; No fixings requiring holes to be drilled through the tape will be accepted.
- (xi) Joints in copper tape shall be tinned before assembly riveted with a minimum of two copper rivets and seated solid.

- (xii) Where holes are drilled in the earth tape for connection to items of equipment the effective cross sectional area must not be less than required to comply with the IEE regulations.
- (xiii) Bolts, nuts and washers for any fixing to the earth tape must be of non-ferrous material.
- (xiv) Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

## 2.16 CABLES AND FLEXIBLE CORDS

All cables used in this Sub-Contract shall be manufactured in accordance with the current appropriate Kenya standard Specification which are as follows:-

P.V.C. Insulated Cables and Flexible Cords	-	Ks 04-192:1988
PVC Insulated Armoured Cables 194:1990	-	Ks 04-
Armouring of Electric cables 290:1987	-	Ks 04-

The successful Sub-Contractor will, at the Engineers discretion be required to submit samples of cables for the Engineers approval; the Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

P.V.C. insulated cables shall be 500/1000 volt grade. No cables smaller than 1.5mm<sup>2</sup> shall be used unless otherwise specified. The installation and the finish of cables shall be as detailed in later clauses. The colour of cables shall conform with the details stated in the "Cable Braid and insulation Colours" Clause.

## 2.17 ARMoured P.V.C. INSULATED AND SHEATHED CABLES:

Shall be 600/1000 volt grade manufactured to Ks 04-194:1988 and Ks 04-187/188 with copper stranded conductors.

The wire armour of the cable shall be used wholly as an earth continuity conductor and the resistance of the wire armour shall have a resistance not more than twice of the largest current carrying conductor of the cable.

P.V.C./S.W.A./P.V.C. cables shall be terminated using "Telecom" "B" type or approved equal or approved equal glands and a P.V.C. tapered sleeve shall be provided to shroud each gland.

Where cables rise from floor level to switchgear etc., they shall be protected by P.V.C. conduit, to a height of 600mm from finished floor level, whether the cable is run on the surface or recessed into the wall.

## 2.18 CABLE SUPPORTS, MARKERS AND TILES

All PVC/SWA/PVC cables run inside the building shall be fixed in rising ducts or on ceilings by means of die cast cables hooks or clamps, or appropriate size to suit cables, fixed by studs and back nuts to their channel sections.

Alternatively, fixing shall be by BICC claw type cleating system with die-cast cleats and galvanized mild steel back straps or similar approved equal method. For one or two cables run together the cleats shall be fixed a special channel section supports or backstraps described above which shall in turn be secured to walls or ceilings of ducts by rawbolts.

In excessively damp or corrosive atmospheric conditions special finishes may be required and the Sub-contractor shall apply to the Engineer for further instructions before ordering cleats and channels for such areas.

The above type of hooks and clamps and channels or cleats and blackstraps shall also be used for securing cables in vertical ducts.

Cables supports shall be fixed at 600mm maximum intervals, the supports being supplied and erected under this Sub-contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has received prior approval of the Engineer;

Cables are to be kept clear of all pipe work and the Sub-contractor shall work in close liaison with other services Sub-contractors.

The Sub-Contractor shall include for the provision of fixing of approved type coloured slip on cables end markers to indicate permanently the correct phase and neutral colours on all ends.

Provision shall be made for supplying and fixing approved non-corrosive metal cable markers to be attached to the outside of all PVC/SWA/PVC cables at 15mm intervals indicating cable size and distinction.

Where PVC/SWA/PVC cables are outside the building they shall be laid underground 750mm deep with protecting concrete interlocking cover tiles laid over which shall be provided and laid under this Sub-contract.

All necessary excavations and reinstatement of ground including sanding or trenches will be carried out by the Sub-Contractor, unless otherwise stated.

## **2.19 PVC INSULATED CABLES**

Shall be of non-braided type as CMA reference 6491 x 600/1000/1000 volt grade cables, or equal approved.

PVC cables shall conform to the details of the "Cables and Flexible cords" and "Cable Braid and Insulation Colours" clauses.

## **2.20 HEAT RESISTING CABLES**

Final connections to cookers, water heaters, etc., shall be made using butyl rubber insulated cable as CMA reference 610 butyl (Single core 600/1000 Volt).

This type of cable shall be used in all instances where a temperature exceeding 100°F, but not exceeding 150°F is likely to be experienced. Final connections to

all lighting fittings (and other equipment where a temperature in excess of 150°C likely to be experienced) shall be made using silicon rubber insulated cable or equal and approved.

## 2.21 FLEXIBLE CORDS

Shall be in accordance with the “Cable and Flexible Cords” clause. No cord shall be less than 24/0.2mm in size unless otherwise specified.

Circular white twin TRS flex shall be used for plain pendant fittings up to 100 watts. For all other types of lighting fittings the flexible cable shall be silicone rubber insulated.

No polythene insulated flexible cable shall be used in any lighting fitting or other appliance (see “Heat Resisting Cables” Clause 30).

## 2.22 CABLE ENDS AND PHASE COLOURS

All cable ends connected up in switchgear, MCB panels etc., shall have the insulation carefully cut back and the ends sealed with Hellerman rubber slip on cable end markers.

The markers shall be of appropriate phase colour for switch and all other live feeds to the details of the “Cable Insulation Colours” clause. Black cable with black end markers shall only be used for neutral cables.

**2.23 CABLE INSULATION COLOURS** Unless otherwise stated in later clauses the insulation colours shall be in accordance with the following table.

Where other systems are installed the cable colours shall be in accordance with the details stated in the appropriate clause.

<u>SYSTEM</u>	<u>INSULATION COLOUR</u>	<u>CABLE END MARKER</u>
<b>Main and Sub-Main</b>		
a) Phase	Red	Red
b) Neutral	Black	Black
<b>1) Sub-Circuits Single Phase</b>		
a) Phase	Red	Red
b) Neutral	Black	Black

## 2.24 SUB-CIRCUIT WIRING

For all lighting and sockets wiring shall be carried out in the “looping in” system and there shall be no joints whatsoever. No lighting circuits shall comprise

more than 20 points when protected by 10A MCB. Cables with different cross-section area of copper shall not be used in combination.

Lighting circuits P. V.C. cable 1.5mm<sup>2</sup> for all lighting circuits indicated on the drawing.

Power circuits P.V.C cable (minimum sizes).

(i) 2.5mm<sup>2</sup> for one, two or three 5Amp sockets wired in parallel.

(ii) 2.5mm<sup>2</sup> for one 15Amp socket.

(iii) 2.5mm<sup>2</sup> for maximum of ten switched 13 Amp sockets wired from 30 Amp MCB.

The wiring sizes for lighting circuits and sockets are shown on the drawings. In such cases, the sizes shown on the drawings shall prevail over the sizes specified.

Wiring sizes for other appliances shall be shown on the drawing or specified in later clauses of this specification.

## **2.25 SPACE FACTOR**

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or as stated in Regulation B.91, B.117 and B.118 of the I.E.E Regulations whichever is appropriate.

## **2.26 INSULATION**

The insulation resistance to earth and between poles of the whole wiring system, fittings and lumps, shall not be less than the requirements of the latest edition of the I.E.E Regulations. Complete tests shall be made on all circuits by the Sub-contractor before the installations are handed over.

A report of all tests shall be furnished by the Sub-Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

## **2.27 LIGHTING SWITCHES**

These shall be mounted flush with the walls, shall be contained in steel or alloy boxes and shall be of the gangs ratings and type shown in the drawings. They shall be as manufactured by M.K. Electrical Ltd., or other equal and approved to KS 04 – 247: 1988

## **2.28 SOCKETS AND SWITCHED SOCKETS**

These shall be flush pattern in steel/pvc box and shall be of the gangs and type specified in the drawings.

They shall be 13- Amp, 3-pin, shuttered, switched and as manufactured by “M.K. Electrical Co. Ltd.”, or other approved equal to KS 04 – 246: 1987

## **2.29 FUSED SPUR BOXES**

These shall be flush, D.P switched as in steel/pvc box and of type and make specified in the drawings complete with pilot light and as manufactured by “M. K. Electrical Company Ltd”, or other approved equal. KS 04 – 247: 1988

### **2.30 COOKER OUTLETS**

These shall be flush mounted with 13-A switched socket outlet and neon indicator Lamps.

The cooker control units shall be as manufactured by “M.K. Electrical Company Ltd”, or other approved equal KS 04 – 247: 1988

### **2.31 CONNECTORS**

Shall be specified in the drawings and appropriate rating. These shall be fitted at all conduit box lighting point outlets for jointing of looped P.V.C cables with flexible cables of specified quality.

### **2.32 LAMPHOLDERS**

Shall be of extra heavy H.O skirted and shall be provided for every specified lighting fitting and shall be B.C., E.S., or G.E.S as required. All E.S. and G.E.S. holders shall be heavy brass type (except for plain pendants where the reinforced bakelite type shall be used). The screwed cap of the E.S and G.E.S. holders shall be connected to the neutral.

Where lampholders are supported by flexible cable, the holders shall have “cord grip” arrangements and in the case of metal shades earthing screws shall be provided on each of the holders.

The Sub-Contractor must order the appropriate type of holder when ordering lighting fittings, to ensure that the correct types of holders are provided irrespective of the type normally supplied by the manufacturers.

### **2.33 LAMPS**

All lamps shall be suitable for normal stated supply voltage and the number and sizes of lamps detailed on the drawings shall be supplied and fixed. The Sub-Contractor must verify the actual supply voltage with the supply authority before ordering the lamps.

Tungsten filament lamps shall be manufactured in accordance with KS 04 – 112:1978 for general service lamps and KS 04 – 307:1985 for lamps other than general services. Tubular fluorescent lamps shall comply with KS 04 – 464:1982

Pearl lamps shall be used in all fittings unless otherwise specified.

### **2.34 LIGHTING FITTINGS AND STREET LIGHTING LANTERNS**

This Sub-Contract shall include for the provision, handling charges, taking the delivery, safe storage, wiring (including internal wiring) assembling and erecting of all lighting fittings shown on the drawings.

All fittings and pendants shall be fixed to the conduit boxes with brass R/H screws. These to be in line with metal finish of fittings. The lighting fittings are detailed for the purpose of establishing a high standard of finish and under no circumstances will substitute fittings be permitted.

In case of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support in addition to the central conduit box fittings. Supports shall be provided and fixed by the Sub-Contractor

The whole of the metal work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers -, the Sub-contractor shall include cost of additional work necessary in his tender. See "Flexible Cords" clause for details of internal wiring of lighting fittings. Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

Where two or more points are shown adjacent to each other on the drawings, e.g socket outlet and telephone outlet, they shall be lined up vertically or horizontally on the centre lines of the units concerned

Normally, the units shall be lined up on vertical centre lines, but where it is necessary to mount units at low level they shall be lined up horizontally.

### **2.35 POSITIONS OF POINTS AND SWITCHES**

Although the approximate positions of all points are shown on the drawings, enquiry shall be made as to the exact positions of all M.C.B panels, lighting points, socket outlets etc, before work is actually commenced. The Sub-contractor must approach the Architect with regard to the final layout of all lights on the ceiling and walls.

The Sub-contractor must consult with the Engineer in liaison with the Clerk of Works, or the General Foreman on site regarding the positions of all points before fixing any conduit etc. The Sub-Contractor shall be responsible for all alterations made necessary by the non-compliance with the clause.

### **2.36 STREET/SECURITY OUTDOOR LIGHTING COLUMNS:**

The column shall be at a minimum of 225mm in the ground on 75mm thick concrete foundations and the pole upto 150mm shall be surrounded with concrete. The top bracket and plain section of the columns shall be common to and interchangeable with all brackets with maximum mismatching tolerance of 3mm between any pole and bracket. After manufacture and before erection the columns shall be treated with an approved mordant solution which shall be washed off and the whole allowed to dry. Thereafter, the columns shall be painted with one undercoat and two coats of gloss paint to an approved colour. All columns shall be complete with fused cut-outs.

### **2.37 TIMING CONTROL SWITCH**

These shall be installed where shown on the drawings. Photocell timing control circuits which will operate 'on' with a specified level of darkness and 'off' with a given level of light. The initial adjustment will be done with approval of the Electrical Engineer

### **2.38 WIRING SYSTEM FOR STREETLIGHTING**



Cables shall be as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm<sup>2</sup> PVC twin insulated and sheathed cable with earth wire shall be laid at least 600mm below the finished road level on a compact bed of murrum at least 50mm thick and covered with a concrete surrounded 150mm thick.

### **2.39 METAL CONTROL PILLAR**

These shall be metal clad and fabricated as per contract drawings and specification. The Sub-Contractor shall supply, install, test and commission control pillars including supplying, fixing connecting switchgears as detailed on the appropriate drawings.

### **2.40 CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER**

Current operated earth leakage circuit breaker shall conform to B.S.S. 4293:68 rated at 240 volts D.P. 50 cycles A.C. Mains.

The breaker shall be provided with test switch and fitted in weather proof enclosure for surface mounting. The rated load current and earth fault operating current shall be as specified in the drawings. These shall be as manufactured by Crabtree, Siemens or other equal and approved.

### **2.41 M.V. SWITCHBOARD AND SWITCHGEAR**

The switchboard shall be manufactured in accordance with KS04-226 which coordinates the requirements for electrical power switchgear and associated apparatus. It is not intended that this K.S. should cover the requirements for specified apparatus for which separate Kenyan Standard exist. All equipment and material used in the switchboard shall be in accordance with the appropriate Kenya Standard.

The switchboard shall comprise the equipment shown on the drawings together with all current transformers, auxiliary fuses, labels, small wiring and interconnections necessary for the satisfactory operation of the switchboard. Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular specifications, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The maximum height of the switchboard is to be approximately 2.0 meters. A suitable connection chamber containing all field terminals shall be provided at the top or bottom of the switchboard as appropriate.

Before manufacture, the Sub-Contractor shall submit to the consulting Engineer for approval of detailed drawings showing the layout, construction and connection of the switchboard.

All bus-bars and bus-bar connections shall consist of high conductivity copper and be provided in accordance with KS 04-226: 1985. The bus-bars shall be clearly marked with the appropriate phase and neutral colours which should be red, yellow, blue for the phases and black for neutral. The bus-bars shall be so arranged in the switchboard that the extensions to the left and right may be made in the future with ease should the need arise.

Small wiring, which will be neatly arranged and cleated, shall be executed in accordance with B.S. 158 and the insulation of the wiring shall be colored according to the phase or neutral connection.

Switches and fuse switches, shall be in strict accordance with KS04-183:1978 Class 2 switches. Means of locking the switch in the "OFF" position shall be provided.

All fuse switches shall comply with KS04-183:1978, PARTS 2 and 3 a fault rating at least equal to the fault rating of the switchboard in which they are installed. Cartridge fuse links to KS 04-183:1978 category A.C. 46, class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work. When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall be provided.

## **2.42 STEEL CONDUITS AND STEEL TRUNKING**

Conduits shall be of heavy gauge class "B" welded to Standard specification KS 04-180:1985. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enameled finish except where specified otherwise. Where installed externally or in damp conditions they shall be galvanised. Conduit fittings, accessories or equipment used in conjunction with galvanised conduits shall also be galvanised or otherwise as approved by the service engineer.

Metal trunking shall be fabricated from mild steel of not less than 18 swg. All sections of trunking shall be rigidly fixed together and attached to the framework or fabric or the building at intervals of not less than 1.2m. Joint trunking shall not overhang fixing points by more than 0.5m.

All trunking shall be made electrically continuous by means of 25 x 3mm copper links across each joint and where the trunking is galvanised, the links shall be made by galvanised flat iron strips.

All trunking fittings (i.e. Bends, tees, etc) shall leave the main through completely clear of obstructions and continuously open except through walls and floors at which points suitable fire resisting barriers shall be provided as

may be necessary. The inner edge of bends and tees shall be chamfered where cables larger than 35mm<sup>2</sup> are employed.

Where trunking passes through ceilings and walls the cover shall be solidly fixed to 150mm either side of ceilings and floors and 50mm either side of walls.

Screws and bolts securing covers to trunking or sections of covers together shall be arranged so that damage to cables cannot occur either when fixing covers or when installing cables in the trough.

Where trunking is used to connect switchgear or fuseboards, such connections shall be made by trunking fittings manufactured for this purpose and not by multiple conduit couplings.

Where vertical sections of trunking are used which exceed 4.5m in length, staggered tie off points shall be provided at 4.5m intervals to support the weight of cables.

Unless otherwise stated, all trunking systems shall be painted as for conduit.

**Where a wiring system incorporates galvanized conduit and trunking, the trunking shall be deemed to be galvanized unless specified otherwise.**

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstances be such that a space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects. Oil and any other insulating substance shall be removed from the screw threads; where conduits terminate in fuse-gear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enamelled tubing and galvanising paint for galvanised tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit. The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inter-position of a draw-in-box. Where straight runs of conduit are installed, draw-in-boxes shall be provided at distances not exceeding 15m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduit shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain of all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150mm clear of hot water and steam pipes, and at least 75mm clear of cold water and other services unless otherwise approved by the services engineer.

All boxes shall conform to KS 04 – 668: 1986, to be of malleable iron, and black enamelled or galvanised according to the type of conduit specified. All accessory boxes shall have threaded brass inserts.

Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium plated steel screws.

All adaptable boxes and lids of the same size shall be interchangeable. Boxes used on surface work are to be tapped or drilled to line up with the conduit fixed in distance type saddles allowing clearance between the conduit and wall without the need for setting the conduit.

Where used in conjunction with mineral insulated copper sheathed cable, galvanised boxes shall be used and painted after erection.

Draw-in boxes in the floors are generally to be avoided but where they are essential they must be grouped in positions approved by the services engineer and covered and by the suitable floor traps, with non-ferrous trays and covers.

The floor trap covers are to be recessed and filled in with a material to match the floor surface.

The Sub-contractor must take full responsibility for the filling in of all covers, but the filling in material will be supplied and the filling carried out by the main building contractor.

Where buried in the ground outside the building the whole of the buried conduit is to be painted with two coats of approved bitumastic composition before covering up.

Where run on the surface, unpainted fittings and joints shall be painted with two coats of oil bound enamel applied to rust and grease free metalwork.

## **2.43 TESTING ON SITE**

The Sub-contractor shall conduct during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specification and the Electric Supply Company's By-Laws.

- (a) Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.
- (b) Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.
- (c) Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the Sub-contractor will be required to issue

to the service engineer the requisite certificate upon completion as required by the regulations referred to above.

(d) Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Sub-contractor at his own expense.

(e) The Sub-contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.

The Sub-contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.

The Sub-contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.

Where such equipment, etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise ( e.g. air conditioning system) the Sub-contractor shall attend on and assist in balancing, regulating testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the service engineer's approval.

## **APPENDIX TO GENERAL SPECIFICATIONS OF MATERIALS AND WORKS**

The electrical sub-contractor shall comply with the following:-

1. Government Electrical Specifications No. 1 and No. 2.
2. All requirements of Kenya Power and Lighting Company Limited, and Communications Authority of Kenya (CA).
3. Be duly registered with National Construction Authority for Electrical installation works with a valid annual practicing license.
4. Have a valid license from Energy Regulatory Commission for Electrical installation works.

SECTION NAME:

PART C: BILLS OF QUANTITIES

## BILLS OF QUANTITIES AND SCHEDULE OF UNIT RATES

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## GENERAL NOTES TO TENDERERS

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings, general specifications of materials and works and particular specifications of materials
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (**including 16% VAT**).

In accordance with Government policy, the 3% Withholding Tax **shall be deducted** from all payments made to the Tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

- 3 All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part thereof.
4. The brief description of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere. Otherwise alternative brands of **equal** and **approved** quality will be accepted.

Should the sub-contractor install any material not specified here in before receiving **written approval** from the Project Manager, the sub-contractor shall remove the material in question and, **at his own cost**, install the proper material.

5. The grand total of prices in the price summary page must be carried forward to the **Form of Tender for the tender to be deemed valid**.



**Statement of Compliance**

- a) I confirm compliance of all clauses of the General Conditions, General Specifications and Particular Specifications in this tender.
  
- b) I confirm compliance to the items specified in technical catalogues and brochures I have attached as required in the technical schedule.

Name: .....

Capacity..... *(Person with power of attorney)*

Signed: ..... *for and on behalf of the Tenderer*

Date: .....

Official Rubber Stamp: .....

## **PRICING OF ITEMS.**

The Bills of Quantities are divided generally into three sections:-

### **Preliminaries – Bill 1**

Prices will be inserted against item of preliminaries in the sub-contractor's Bills of Quantities and specification. These Bills are designated as Bill 1 in this Section.

Where the sub-contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract

Sub-contractors preliminaries are as per those described in section C – sub-contractor preliminaries and conditions of contractor.

The sub-contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer have been limited to tangible items such as site office, temporary works and others.

However the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

### **Electrical installation Items – Bill 2**

The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications.

### **Summary – Bill 3**

The summary contains tabulation of the separate parts of the Bills of Quantities carried forward with provisional sum, contingencies and any prime cost sums included. The sub-contractor shall insert his totals and enter his grand total tender sum in the space provided below the summary.

This grand total tender sum shall be entered in the Form of Tender provided elsewhere in this document

**BILL NO. 1: ELECTRICAL INSTALLATION WORKS**

**SCHEDULE No. 1: ELECTRICAL INSTALLATION TO BASEMENT**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Supply, install, test and commission the following:				
1.10	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	4	No		
	b) Two way switching	18	No		
1.20	<b>SWITCHES</b>				
1.21	approved equivalent as follows:-				
	a) One gang one way	4	No		
	b) One gang two way	4	No		
1.30	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type A	2	NO		
	b)Type B	4	NO		
	c)Type H	17	NO		
2.00	<b>POWER POINTS</b>				
2.10	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a)Single outlet	3	NO		
	b)Twin outlet	10	NO		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	3	NO		
	b Twin switched	10	NO		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Sub-Total carried forward from previous page</b>				
2.20	Fire alarm repeater panel power points comprising wiring in 3 x 4.0mm <sup>2</sup> PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates	1	No		
2.21	20A, unswitched fused spur DP control switch with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
3.00	<b>INTERNAL POWER DISTRIBUTION</b>				
3.10	<b>DISTRIBUTION BOARD</b>				
3.11	6-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	1	NO		
3.12	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.13	Miniature circuit breakers				
	a) 10A SP MCB	5	NO		
	b) 20A SP MCB	7	NO		
	c) 30A SP MCB	6	NO		
	d) 45A SP MCB	1	NO		
	e) 63A TP MCB	2	NO		
	f) SP Blanking plates	2	NO		
	g) TP Blanking plates	7	NO		
3.20	<b>SUBMAIN CABLING</b>				
3.21	<b>Submain</b> wiring from the Meterboard to Distribution Board "DB"BA" in 5x16mm <sup>2</sup> SC PVCU copper conductor cables drawn in HG PVC conduits.	25	M		
	a) Metallic cable glands for the cable above	8	No		
3.22	Distribution Board "DB"BB" in 5x10mm <sup>2</sup> SC PVCU copper conductor cables drawn in HG PVC conduits.	100	M		
	a) Metallic cable glands for the cable above	2	No		
3.23	150x75mm, 14SWG cable tray c/w mounting row bolts for mounting and all the other necessary accessories	80	M		
	<b>Sub-Total carried forward to next page</b>				
	D/4				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
4.00	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	14	No.		
4.20	Addressable Photoelectric Heat Detector as Menvier or Approved Equivalent	9	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	2	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	2	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
5.00	<b>CCTV SYSTEM</b>				
5.10	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	5	No		
	<b>Total for schedule 1 carried forward to price summary page</b>				

**SCHEDULE No. 2: ELECTRICAL INSTALLATION TO GROUND FLOOR**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Supply, install, test and commission the following:</b>				
<b>1.10</b>	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	65	No		
	b) Two way switching	33	No		
<b>1.20</b>	<b>SWITCHES</b>				
1.21	10A, moulded plastic ivory white switch plates as Crabtree or approved equivalent as follows:-				
	a) One gang one way	9	No		
	b) Two gang one way	1	No		
	c) One gang two way	4	No		
	c) Two gang two way	2	No		
<b>1.30</b>	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type E	48	NO		
	b)Type A	5	NO		
	c)Type B	31	NO		
	d)Type H	6	NO		
	e)Type G	16	NO		
	e)Type D	2	NO		
<b>2.00</b>	<b>POWER POINTS</b>				
<b>2.10</b>	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a)Single outlet	4	NO		
	b)Twin outlet	17	NO		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	4	NO		
	b Twin switched	17	NO		
2.20	Fire alarm control panel power points comprising wiring in 3 x 4.0mm <sup>2</sup> PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates	1	No		
2.21	20A, unswitched fused spur DP control switch with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
2.30	Hand drier power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ HG/PVC conduits complete with all necessary accessories	3	No		
2.31	20A, DP control switch marked 'Hand drier' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
2.40	Extract fan power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ concealed HG PVC conduits	3	No		
2.41	20A, DP control switch marked 'Extract Fan' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>3.00</b>	<b>INTERNAL POWER DISTRIBUTION</b>				
<b>3.10</b>	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	20	NO		
	b) 20A SP MCB	6	NO		
	c) 30A SP MCB	8	NO		
	d) SP Blanking plates	2	NO		
	e) TP Blanking plates	7	NO		
<b>3.20</b>	<b>SUBMAIN CABLING</b>				
3.21	Submain wiring from the Meterboard to Distribution Board "GA" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduits.	30	M		
	a) Metallic cable glands for the cable above	8	No		
3.22	Submain wiring from the Distribution Board "GA" to Distribution Board "GB" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduits.	30	M		
	a) Metallic cable glands for the cable above	2	No		
3.23	150x75mm, 14SWG cable tray c/w mounting row bolts for mounting and all the other necessary accessories	100	M		
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	18	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	13	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	2	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	2	No.		
4.50	Microprocessor based 2-Loop Addressable Fire Alarm Control Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 2 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	20	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	15	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	15	No		
5.40	TV outlet point complete with draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	5	No		
	a) TV outlet plate as Crabtree or approved equivalent	5	No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	16	No		
<b>6.00</b>	Access control points each point from the communication room done in 25mmsq. Size conduits concealed inside ceiling	6	No.		
	<b>Total for schedule 2 carried forward to price summary page</b>				

**SCHEDULE No. 3: ELECTRICAL INSTALLATION TO FIRST FLOOR**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Supply, install, test and commission the following:</b>				
<b>1.10</b>	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	91	No		
	b) Two way switching	8	No		
<b>1.20</b>	<b>SWITCHES</b>				
1.21	approved equivalent as follows:-				
	a) One gang one way	7	No		
	b) Two gang one way	2	No		
	c) One gang two way	2	No		
<b>1.30</b>	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type E	87	NO		
	b)Type A	5	NO		
	c)Type B	30	NO		
	d)Type H	1	NO		
<b>2.00</b>	<b>POWER POINTS</b>				
<b>2.10</b>	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables				
	a)Single outlet	3	NO		
	b)Twin outlet	33	NO		
	c) <b>Floor Distribution Systems:</b> Floor recessed/mounted power outlet station complete with 4 No. 13A twin standard switched socket outlets for raw power, 4 No. telephone cord outlet plates, 4 No. data cable outlet plates and wiring in 3 x 2.5mm <sup>2</sup> SC-PVC-CU cables. To be constructed from high quality pre-galvanised steel sheets and stainless steel cover.	8	No.		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	3	NO		
	b Twin switched	41	NO		
2.20	Fire alarm repeater panel power points comprising wiring in 3 x 4.0mm <sup>2</sup> PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates	1	No		
2.21	20A, unswitched fused spur DP control switch with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
2.30	Hand drier power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ HG/PVC conduits complete with all necessary accessories	3	No		
2.31	20A, DP control switch marked 'Hand drier' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
2.40	Extract fan power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ concealed HG PVC conduits	3	No		
2.41	20A, DP control switch marked 'Extract Fan' with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
	<b>Sub-Total carried forward to next page</b>				



ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
3.00	<b>INTERNAL POWER DISTRIBUTION</b>				
3.10	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	10	NO		
	b) 20A SP MCB	8	NO		
	c) 30A SP MCB	5	NO		
	d) 45A TP MCB	1	NO		
	e) SP Blanking plates	3	NO		
	f) TP Blanking plates	4	NO		
3.20	<b>SUBMAIN CABLING</b>				
3.21	<b>Submain</b> wiring from the Meterboard to Distribution Board "F11A" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	110	M		
	a) Metallic cable glands for the cable above	8	No		
3.22	<b>Submain</b> wiring from the Distribution Board "F11A" to Distribution Board "F11B" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	50	M		
	a) Metallic cable glands for the cable above	2	No		
3.23	150x75mm, 14SWG cable tray c/w mounting row bolts for mounting and all the other necessary accessories	50	M		
	Sub-Total carried forward to next page				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	19	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	9	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	2	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	2	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 2 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	60	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	34	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	34	No		
5.40	TV outlet point complete with draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	2	No		
	a) TV outlet plate as Crabtree or approved equivalent	2	No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	8	No		
<b>6.00</b>	Access control points each point from the communication room done in 25mmsq. Size conduits concealed inside ceiling	2	No.		
	<b>Total for schedule 3 carried forward to price summary page</b>				

**SCHEDULE No. 4: ELECTRICAL INSTALLATION TO SECOND FLOOR**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Supply, install, test and commission the following:</b>				
<b>1.10</b>	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	95	No		
	b) Two way switching	8	No		
<b>1.20</b>	<b>SWITCHES</b>				
1.21	10A, moulded plastic ivory white switch plates as Crabtree or approved equivalent as follows:-				
	a) One gang one way	10	No		
	b) Two gang one way	4	No		
	c) One gang two way	2	No		
<b>1.30</b>	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type E	56	NO		
	b)Type A	5	NO		
	c)Type B	34	NO		
	d)Type H	1	NO		
<b>2.00</b>	<b>POWER POINTS</b>				
<b>2.10</b>	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a)Single outlet	3	NO		
	b)Twin outlet	26	NO		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	3	NO		
	b Twin switched	26	NO		
<b>3.00</b>	<b>INTERNAL POWER DISTRIBUTION</b>				
<b>3.10</b>	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	10	NO		
	b) 20A SP MCB	8	NO		
	c) 30A SP MCB	2	NO		
	d) SP Blanking plates	4	NO		
	e) TP Blanking plates	2	NO		
<b>3.20</b>	<b>SUBMAIN CABLING</b>				
3.21	Submain wiring from the Meterboard to Distribution Board "F12" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	120	M		
	a) Metallic cable glands for the cable above	8	No		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	11	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	8	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	1	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	1	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 2 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	60	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	21	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	21	No		
5.40	TV outlet point complete with draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	4	No		
	a) TV outlet plate as Crabtree or approved equivalent	4	No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	7	No		
<b>6.00</b>	Access control points each point from the communication room done in 25mmsq. Size conduits concealed inside ceiling	4	No.		
	<b>Total for schedule 4 carried forward to price summary page</b>				

**SCHEDULE No. 5: ELECTRICAL INSTALLATION TO THIRD FLOOR**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Supply, install, test and commission the following:				
1.10	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	43	No		
	b) Two way switching	7	No		
1.20	<b>SWITCHES</b>				
1.21	10A, moulded plastic ivory white switch plates as Crabtree or approved equivalent as follows:-				
	a) One gang one way	5	No		
	b) Two gang one way	2	No		
	c) One gang two way	1	No		
1.30	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type A	3	NO		
	b)Type B	20	NO		
	c)Type H	27	NO		
2.00	<b>POWER POINTS</b>				
2.10	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a)Single outlet	3	NO		
	b)Twin outlet	20	NO		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	3	NO		
	b Twin switched	26	NO		
2.20	Fire alarm repeater panel power points comprising wiring in 3 x 4.0mm <sup>2</sup> PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates	1	No		
2.21	20A, unswitched fused spur DP control switch with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
2.30	Hand drier power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ HG/PVC conduits complete with all necessary accessories	3	No		
2.31	20A, DP control switch marked 'Hand drier' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
2.40	Extract fan power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ concealed HG PVC conduits	3	No		
2.41	20A, DP control switch marked 'Extract Fan' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>3.00</b>	<b>INTERNAL POWER DISTRIBUTION</b>				
<b>3.10</b>	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	10	NO		
	b) 20A SP MCB	8	NO		
	c) 30A SP MCB	5	NO		
	d) 45A TP MCB	4	NO		
	e) SP Blanking plates	3	NO		
	f) TP Blanking plates	4	NO		
<b>3.20</b>	<b>SUBMAIN CABLING</b>				
3.21	<b>Submain</b> wiring from the Meterboard to Distribution Board "F3A" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	60	M		
	a) Metallic cable glands for the cable above	8	No		
3.22	<b>Submain</b> wiring from the Distribution Board "F3A" to Distribution Board "F3B" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	50	M		
	a) Metallic cable glands for the cable above	2	No		
3.23	150x75mm, 14SWG cable tray c/w mounting row bolts for mounting and all the other necessary accessories	150	M		
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	10	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	7	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	1	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	1	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 2 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	60	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	25	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	25	No		
5.40	TV outlet point complete with draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	2	No		
	a) TV outlet plate as Crabtree or approved equivalent	2	No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	3	No		
	<b>Total for schedule 5 carried forward to price summary page</b>				

SCHEDULE No. 6: ELECTRICAL INSTALLATION TO TYPICAL FOURTH FLOOR- NINTH FLOOR

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Supply, install, test and commission the following:</b>				
<b>1.10</b>	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	43	No		
	b) Two way switching	7	No		
<b>1.20</b>	<b>SWITCHES</b>				
1.21	10A, moulded plastic ivory white switch plates as Crabtree or approved equivalent as follows:-				
	a) One gang one way	5	No		
	b) Two gang one way	2	No		
	c) One gang two way	1	No		
<b>1.30</b>	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a)Type A	3	NO		
	b)Type B	20	NO		
	c)Type H	27	NO		
<b>2.00</b>	<b>POWER POINTS</b>				
<b>2.10</b>	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a)Single outlet	3	NO		
	b)Twin outlet	24	NO		
2.12	13A moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	3	NO		
	b Twin switched	24	NO		
2.20	Fire alarm repeater panel power points comprising wiring in 3 x 4.0mm <sup>2</sup> PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates	1	No		
2.21	20A, unswitched fused spur DP control switch with neon light and cord outlet for item above as Crabtree or approved equivalent	1	No		
2.30	Hand drier power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ HG/PVC conduits complete with all necessary accessories	3	No		
2.31	20A, DP control switch marked 'Hand drier' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
2.40	Extract fan power points comprising wiring in 3 x 4mm <sup>2</sup> PVC/SC/CU cables drawn in 25mmØ concealed HG PVC conduits	3	No		
2.41	20A, DP control switch marked 'Extract Fan' with neon light and cord outlet for item above as Crabtree or approved equivalent	3	No		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>3.00</b>	<b>INTERNAL POWER DISTRIBUTION</b>				
<b>3.10</b>	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	10	NO		
	b) 20A SP MCB	8	NO		
	c) 30A SP MCB	5	NO		
	d) 45A TP MCB	4	NO		
	e) SP Blanking plates	3	NO		
	f) TP Blanking plates	4	NO		
<b>3.20</b>	<b>SUBMAIN CABLING</b>				
3.21	<b>Submain</b> wiring from the Meterboard to Distribution Board "F4-9A" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	80	M		
	a) Metallic cable glands for the cable above	8	No		
3.22	<b>Submain</b> wiring from the Distribution Board "F4A" to Distribution Board "F4-9B" in 5x16mm <sup>2</sup> SC PVCI copper conductor cables drawn in HG PVC conduit.	50	M		
	a) Metallic cable glands for the cable above	2	No		
3.23	150x75mm, 14SWG cable tray c/w mounting row bolts for mounting and all the other necessary accessories	150	M		
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	10	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	7	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	1	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	1	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 3 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	60	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	23	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	23	No		
5.40	TV outlet point complete with draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	2	No		
	a) TV outlet plate as Crabtree or approved equivalent	2	No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	3	No		
	<b>Total for 1No. Tycal Floor</b>				
	<b>Total for schedule 6 carried forward to price summary page</b>				



SCHEDULE No. 7: ELECTRICAL INSTALLATION TO TENTH-ELEVENTH FLOOR FLOOR

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Supply, install, test and commission the following:				
1.10	<b>LIGHTING POINTS</b>				
1.11	Lighting points wired in 3x1.5 mm <sup>2</sup> SC/PVC cables in concealed 20mmØ HG/PVC conduits including all necessary accessories but excluding switches and lighting fittings for:				
	a) One way switching.	17	No		
	b) Two way switching	7	No		
1.20	<b>SWITCHES</b>				
1.21	10A, moulded plastic ivory white switch plates as Crabtree or approved equivalent as follows:-				
	a) One way switching.	4	No		
	b) Two way switching	1	No		
1.30	<b>LIGHTING FITTINGS</b>				
1.31	Supply and install lighting fittings and lamps of appropriate wattage and colour rendering as:				
	a) Type G	14	NO		
	b) Type B	10	NO		
	c) Type A	1	NO		
	d) Type H	8	NO		
2.00	<b>POWER POINTS</b>				
2.10	<b>SOCKET OUTLETS</b>				
2.11	Socket outlet points wired in 3x2.5 mm <sup>2</sup> SC/ PVC copper cables drawn in trunking or concealed 25mmØ HG/PVC conduit as follows:				
	a) Single outlet	1	NO		
	b) Twin outlet	7	NO		
2.12	13A Waterproof moulded switched socket outlet plates as Crabtree or approved equivalent as follows:				
	a) Single switched	2	NO		
	b) Twin switched	7	NO		
3.00	<b>INTERNAL POWER DISTRIBUTION</b>				
3.10	<b>DISTRIBUTION BOARD</b>				
3.11	8-way TPN Distribution Board with 100A integral isolator as Crabtree or approved equivalent	2	NO		
3.12	Miniature circuit breakers				
	a) 10A SP MCB	2	NO		
	c) 30A SP MCB	1	NO		
	e) SP Blanking plates	3	NO		
	f) TP Blanking plates	4	NO		
3.20	<b>SUBMAIN CABLING</b>				
3.21	Submain wiring from the Meterboard to Distribution Board "F10" in 5x16mm <sup>2</sup> SC PVC copper conductor cables drawn in HG PVC conduit.	150	M		
	a) Metallic cable glands for the cable above	8	No		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>4.00</b>	<b>FIRE ALARM SYSTEM</b>				
4.10	Fire Alarm points comprising wiring in 1.5mm <sup>2</sup> heat resistant cables drawn in 20mmØ concealed HG PVC conduits	10	No.		
4.20	Addressable Photoelectric Smoke Detector as Menvier or Approved Equivalent	5	No.		
4.30	Addressable Manual Fire Alarm 'Break Glass' call points as MENVIER or approved equivalent.	2	No.		
4.40	Addressable Electronic Fire Alarm sounder complete with Red Flashing beacon as MENVIER or approved equivalent.	2	No.		
4.50	Microprocessor based Addressable Fire Alarm Repeater Panel as Menvier or Approved Equivalent	1	No.		
<b>5.00</b>	<b>DATA/TELEPHONE &amp; TELEVISION</b>				
5.10	200 X 50mm 3 - compartment Deep Powder coated metal trunking complete with bends, bonding and earthing As Manufactured by Power Technics or approved equivalent	20	LM		
5.20	Data/Telephone outlet point complete with a draw wire drawn in trunking or concealed 20mmØ HG/PVC conduits and linked to the telephone draw in box	5	No		
5.30	a) Dual RJ45 Data/Telephone outlet plate as Crabtree or approved equivalent	5	No		
5.40	TV outlet point complete with draw wire drawn in trunking or a) TV outlet plate as Crabtree or approved equivalent	1 1	No No		
5.50	C.C.T.V points comprising draw wire in concealed 20mm Ø HG PVC Conduits all emanating from the security control office.	2	No		
<b>6.00</b>	Access control points each point from the communication room done in 25mmsq. Size conduits concealed inside ceiling	3	No.		
	<b>Total for schedule 7 carried forward to price summary page</b>				

**SCHEDULE No. 8: COMMON ELECTRICAL SERVICES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
1.00	<b>415V MAIN SWITCHBOARD</b>				
1.11	Free-standing purpose made front access main switchboard manufactured in 14SWG galvanised mild steel sheet and finished in cream (or appropriate colour) powder coating as shown on the schematic (the other details as per Particular Specification), complete with the following:-	1	Item		
1.12	Digital multimeter capable of measuring voltage in the range 0 – 415V, 3-phase, current in the range 0-750A, 3-phase, and all power system parameters (KW, KVA, KWHr, KVARs, Frequency, P.F., harmonics and all the parameters). The multimeter should be complete with selector switches for viewing/displaying the various parameters.				
1.13	1No. 630A TP ACB (adjustable in the range 0.5-1A) Main incomer. (Genset & KPLC Supply)				
1.14	1000A TPN insulated copper bus bar system. (Genset & KPLC Supply) 1No 800 4-Pole copper busbar				
1.15	1No. 630A TPN ACB				
1.16	42No.100A TPN MCCB				
1.17	8NO.63A TPN MCCB				
1.18	4No. 40A TPN MCCB				
1.19	2NO. 32A TPN MCCB				
1.20	4NO.63A TPN MCCB				
1.21	Sufficient spare for mounting kplc check meters				
1.22	Changeover Contactors as shown (The change-over contactors to be TELE-MECANIQUE, minimum rating 630A)				
1.23	Spaces for KPLC's CT's and 1No. 3Phase meter. The spaces to be provided with punched studs for installing KPLC seals.				
1.24	Sufficient spare capacity for future development				
1.25	Sealable studs for all cover plate screws and all necessary accessories				
1.26	6mm perspex viewing window for each section				
1.27	Heavy duty rubber lining for all the perspex viewing windows				
1.28	Clear indicator lamps for "mains available", "mains on load", "generator available", generator on load", together with corresponding permanent labels should also be provided. The change-over and by-pass system to be incorporated in the main switchboard assembly.				
1.29	Provide earthing, in 1500mm long 12mm diameter pure electrolytic copper earth rod deep driven to permanent moisture level, copper clamp. All to KPLC's requirements				
1.30	415V three-phase surge diverter as Furse ESP 415, fully wired, complete with enclosure with viewing window.				
1.31	4 Core 4mm <sup>2</sup> PVC/SWA/PVC copper cable to emergency shunt trip button for fireman's switch drawn in 25mm diameter HG conduit	50	Lm		
1.32	Fire man's switch complete with appropriate contactor as MK or equal and approved.	1	No.		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	<b>Sub-Total carried forward from previous page</b>				
1.33	Carry out concise load balancing to achieve a maximum imbalance not greater than $\pm 10\%$ between any two phases, measured at the Main LV switchboard	1	Lot		
1.34	Carry out very comprehensive labeling of all the bus bars, circuit breakers, etc. of item above, indicating the areas served, outgoing cable sizes etc.	1	Item		
1.35	<b>COMPREHENSIVE PROTECTIVE MULTIPLE EARTHING</b> a) Establish 600x450x700mm deep earthing chamber, complete with internal plastering, and heavy duty EAFW steel cover clearly marked "EARTH". b) Pure copper earth rod (3000mm x 25mm) c) Driving head for earth rod d) Earth rod coupling e) 2X150mm <sup>2</sup> single core green PVC insulated copper earth lead	2 2 2 2 20	No. No. No. No. Lm		
1.36	8X300mm <sup>2</sup> SC PVC/SWA/PVC copper cable from Meter Board to main power distribution panel via generator room c/w appropriate cable lugs e) Cable gland a for above cable	20 4	Lm No.		
1.40	Wall mounted lockable sub-board made from powder coated steel sheets made from sheet metal gauge 12swg and angle line framework and powder coated complete with, phase indicator lamps, selector switch and complete with earth bar, installed in the rising duct and fitted with the following:  i) 1No.125A, 4-pole copper bus bars  ii) 4No. 100A TPN MCCB  iii) 2No. SPARE WAYS  iv) Allow for inter-wiring within the sub-board with the prescribed cable sizes in the drawing.	2	Item		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
2.00	<b>LIGHTNING PROTECTION</b>				
	Supply, install, test, commission and maintain :-				
2.10	25mm wide x 3mm thick copper tape down conductors complete with copper saddles at 1500 mm intervals as Furse TC 030	520	LM		
2.11	25 x 3 mm copper tape clips as Furse CP 510	280	No.		
2.12	15 mm diameter x 1500mm long copper earth electrode complete with clamps, installed into the ground around the building and connected to the test clamps complete with all accessories as Furse RB 110.	6	No.		
2.13	Rod to Tape Clamp as Furse CR 105	6	No.		
2.14	Screw down copper test clamp for straight through tape joint as Furse CN 108	6	No.		
2.15	Concrete Inspection Pit 320 x 320 x 210 mm with cover as Furse as PT 005	6	No.		
2.16	Copper air terminations as Furse comprising multiple spikes, copper stem base complete with all fixing materials	6	No.		
2.17	1500mm x 1500mm copper earth mat made from 25mm x 3mm copper tape at 300mm spacing, buried at permanent moisture level and complete with all clamps, welding joints and 6m long 25mm x 3mm insulated copper tape clamped to the down conductors.	3	No		
2.18	38 mm diameter H.G PVC conduits for drawing in down conductor copper tape from the roof to the ground concealed in the walls complete with all accessories	520	LM.		
3.00	<b><u>POWER FACTOR CORRECTION CAPACITOR BANKS</u></b>				
3.10	350KVAR Power Factor correction capacitor banks comprising a microprocessor system for automatic monitoring and automatic switching of sections of the capacitors whenever the system power factor drops below 0.9. The bank to be made from low-loss bio-degradable compactive units, complete with earthed enclosure. The equipment to be housed inside steel modular cabinet and interwired with the above LV switchboard to approval by the electrical engineer.	1	No.		
4.00	<b><u>POWER SUPPLY TO 2No. LIFTS</u></b>				
4.10	16.0mm <sup>2</sup> 4C-PVC-SWA-PVC copper cables drawn inside concrete cable channel and in the rising duct from LV switchboard to isolator point on 3rd floor in the rising duct.	180	LM		
4.11	63A TP isolator for lifts mounted in the lift shaft/rising duct on the third floor as Merlin Gerin or approved equivalent	2	No.		
	Sub-Total carried forward to next page				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
5.00	<b>Sub-Total carried forward from previous page</b> <b><u>OBSTRUCTION LIGHTS</u></b> Twin omnidirectional red low intensity Obstruction light for 230V AC / 48V DC supply. (Designed and manufactured to comply with ICAO Annex 14, Volume 1, Para 6.3 IP54) As Thorn F2-1 / F-22 or approved equivalent.	2	No.		
5.10	2.5mm <sup>2</sup> 2C-PVC-SWA-PVC copper cables drawn inside the rising duct from DB1 to obstruction lights point on the roof top.	180	LM		
6.00	<b><u>FIRE HOSE REEL PUMPS</u></b>				
6.10	4.0mm <sup>2</sup> 2C-PVC-SWA-PVC copper cables drawn inside the rising duct from DB1 to isolator point on 3rd floor in the rising duct.	100	LM		
6.11	20A SPN isolator as MK range or approved equivalent	2	No.		
6.12	Cable glands for the cable in Item No. 4.1.6(A) above	4	No.		
7.00	<b><u>AIR EXTRACT FANS</u></b>				
7.10	6.0mm <sup>2</sup> 4C-PVC-SWA-PVC copper cables drawn inside the concrete cable channel and the rising duct from LV switchboard to isolator point on 3rd floor in the rising duct.	520	LM		
7.11	Ditto but 4.0mm <sup>2</sup> 2C-PVC-SWA-PVC copper cables .	520	LM		
7.12	32A TP isolator as MK range or approved equivalent	6	No.		
7.13	Cable glands for the cable in Item No. 4.1.7(A) above	4	No.		
8.00	<b><u>BOREHOLE (PROVISIONAL)</u></b>				
8.10	Borehole and Water booster pump points wired in 4.0mm <sup>2</sup> 2C-PVC-SWA-PVC copper cables drawn in 20mm heavy gauge PVC conduits concealed in the wall and floor slab complete with all accessories but excluding the double pole switch outlet plate.	100	LM		
8.12	Cable glands for the cable in Item No. 4.1.8(A) above	4	No.		
8.13	20A SPN Isolator, weatherproof IP65 rated, wall mounted and labelled "BOOSTER PUMP" and "BOREHOLE" as KATKO	2	No.		
9.00	<b><u>AIR CONDITIONER POINTS</u></b>				
9.10	Air conditioner points wired in 5x16sq.mm PVC SC all drawn in 50mm diameter PVC heavy gauge conduits concealed in the slab	350	LM		
9.12	63A TP isolator as MK range or approved equivalent	8	No.		
	<b>Sub-Total carried forward to next page</b>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (KSHS)
	Sub-Total carried forward from previous page				
<b>10.00</b>	<b>SOLAR POWER SYSTEM</b>				
10.10	Supply, deliver, install and commission a complete Solar system including support structure, panels, Protection system, 1500AH 48V, battery bank, 12KVA Hybrid Inverter and 80A MPPT Charge controllers.				
10.12	1500AH battery bank of 200AH batteries as Ritar or approved Equivalent Complete with Battery Rack	30	No.		
10.13	325 W Solar panels as Jinko or approved equivalent	36	No.		
10.14	Solar Panel structure	1	No.		
10.15	12KVA Hybrid Inverter as MUST or approved equivalent.	1	No.		
10.16	80A MPPT Charge controllers as Morningstar or approved Equivalent	4	No.		
10.17	Provision of DC Breakers and installation of power points, including interconnection with the KPLC Mains at the LV Switchboard via intelligent system.	1	Item		
<b>11.00</b>	<b>EXTERNAL POWER RETICULATION</b>				
11.10	Supply and install 100 diameter HG/PVC ducts across the road sections	60	M		
11.20	Supply and install 100 diameter HG/PVC ducts across the road sections with concrete surround	10	M		
11.30	Supply and install 50 diameter HG/PVC ducts	25	M		
11.40	Trenching at an average depth of 750 mm laying, tilling and backfilling	50	M		
11.50	PMHC-600 x 600 x 600 mm deep manhole with concrete metal cover	10	No		
11.60	A photocell to fit 70-75lux switch on level and 1.5 maximum differential and as THORN QPK	2	No.		
<b>12.00</b>	<b>EXTERNAL TELEPHONE RETICULATION</b>				
12.10	Supply and install 75 diameter HG/PVC ducts across the road sections	60	M		
12.20	Supply and install 75 diameter HG/PVC ducts across the road sections with concrete surround	10	M		
12.40	PMHC-600 x 600 x 600 mm deep manhole with concrete metal cover	10	No		
<b>13.00</b>	<b>CENTRALISED VOLTAGE STABILIZER</b>				
	Supply, install, test and commission a 100KVA 3-PHASE 415V, 50Hz Modular centralised voltage stabiliser compete with appropriate TP MCCB & all installation accessories	1	No.		
	<b>Total for schedule 8 carried forward to price summary page</b>				

**PRICE SUMMARY PAGE**

ITEM	DESCRIPTION	AMOUNT (KSHS)
	<b><u>BILL NO. 1: SUB-CONTRACT PRELIMINARIES</u></b>	
A	Total for sub-contract preliminaries	
	<b><u>BILL NO. 2: BASEMENT - ELEVENTH FLOOR</u></b>	
B	Total for Schedule 1 – BASEMENT	
C	Total for Schedule 2 – GROUND FLOOR	
D	Total for schedule 3 – FIRST FLOOR	
E	Total for schedule 4 – SECOND FLOOR	
F	Total for schedule 5 – THIRD FLOOR	
G	Total for schedule 6 – FOURTH-NINTH TYPICAL FLOORS	
H	Total for Schedule 7 – TENTH FLOOR-ELEVENTH FLOORS	
I	Total for schedule 8 – COMMON ELECTRICAL SERVICES	
	<b><u>BILL NO. 3: PROVISIONAL &amp; PC SUMS</u></b>	
J	Allow for a Contingency Sum to be used at the discretion of the Project Electrical Engineer	
K	Allow for provisional sum for preparation and production of 4No. sets of “As installed Drawings” hard copies negatives and soft copies in AutoCAD 2017 on CD/DVD	
L	Allow a Provisional Sum for KPLC Ltd charges, Liaison and attendance.	
	<b>TOTAL CARRIED FORWARD TO THE MAIN SUMMARY PAGE</b>	



**MAIN SUMMARY PAGE**

ITEM	DESCRIPTION	AMOUNT (KSHS)
1.00	PRELIMINARIES	
2.00	Total for Bill No. 1: Electrical Installation Works	
3.00	Allow for a Provisional Sum for training of staff on the operation and working of the installations	<b>100,000.00</b>
<b>TOTAL CARRIED FORWARD TO THE FORM OF TENDER</b>		

**Total Amount in Words (Kenya Shillings)**

.....

**Total Amount in Words (Kenya Shillings)**

.....

**Bidder's Name & Official Stamp**

.....

**P.O. Box** .....

**Signature** .....

**Date** .....

**PIN NO** .....

**V.A.T Certificate NO** .....

**Witness** .....

**Address** .....

**Signature of Witness** .....

**Date** .....

**ANNEX TO BILLS OF QUANTITIES - SCHEDULE OF LIGHTING FITTINGS**

Item	Description
<b>Type A:</b>	Self-contained double sided EXIT sign with 8W LED lamp for non-maintained emergency lighting for 3 hour duration as Sapphire or approved equivalent.
<b>Type E:</b>	40W, 6500K, 600 x 600mm Square, Recessed LED Panel Light, 3900lm, as PHILIPS or equal and approved equivalent
<b>TYPE H:</b>	36W,4450lm 6500k Daylight LED batten Luminaire, 1200mm with a detachable LED engine. Switchable or DALI ballast As Thorn PopPack LED
<b>Type D:</b>	5W, 350lm, 6500K Daylight Circular Recessed LED downlight as Philips Essential Downlight or equal and approved equivalent
<b>Type F:</b>	100W LED Flood light as Phillips
<b>Type G:</b>	Vandal resistant 2X14W LED fluorescent bulkhead as Thorn Cat. No. OBV 2008 or approved equivalent
<b>TYPE B:</b>	16W,1692 lm, 6500K Daylight LED Recessed circular edge lit panel as Thorn OMEGA C LED or equal and approved equivalent.
<b>TYPE S:</b>	600mm, 1x18W Slim section LED fluorescent batten fitting with acrylic reeded diffuser and three position polycarbonate end-caps cw pull cord as THORN ARROWSLIM

SECTION NAME:

PART D: SCHEDULE OF UNIT RATES

## SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorised variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.

**SCHEDULE OF UNIT RATES**

NO	DESCRIPTION	UNIT RATE (KSHS)
1	<b>PVC/SWA/PVC Copper cables per metre</b> a) 2.5mm sq. 2 core b) 4.0 mm sq 4 core c) 6.0 mm sq 4 core d) 10 mm sq 4 core e) 16.0 mm sq 4 core f) 25.0 mm sq 4 core g) 35 mm sq 4 core h) 50 mm sq 4 core i) 70 mm sq 4 core j) 95 mm sq 4 core k) 300 mm sq 4 core l) 300mm sq. SC	
2	<b>IP 65 rated Isolators as KATKO, 3 Phase</b> a) 20A b) 32A c) 63A d) 100A e) 200A	
3	<b>IP 65 rated Isolators as KATKO, Single Phase</b> a) 20A b) 32A c) 63A d) 100A	
4	Emergency Shutdown switch	
5	<b>LED Flood Lights</b> a) 30A Watts b) 100 Watts c) 200 Watts	
6	<b>Distribution Boards</b> a) 8 Ways TPN b) 9 Ways TPN	
7	<b>Industrial Sockets outlets, 5 pin</b> a) 20A b) 32A	
8	<b>Industrial Sockets outlets, 3 pin</b> a) 20A b) 32A	

SECTION NAME:

PART E: TECHNICAL SCHEDULE

## TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED CONTENTS

1.	GENERAL NOTES TO THE TENDERER.....	(ii)
2.	TECHNICAL SCHEDULE.....	TS-1

## TECHNICAL SCHEDULE

### **I. General Notes to the Tenderer**

- 1.1 The tenderer shall submit technical schedules for all materials and equipment upon which he has based his tender sum.
- 1.2 The tenderer shall also submit separate comprehensive descriptive and performance details for all plant apparatus and fittings described in the technical schedules. Manufacturer's literature shall be accepted. Failure to comply with this may have his tender disqualified.
- 1.3 Completion of the technical schedule shall not relieve the Contractor from complying with the requirements of the specifications except as may be approved by the Engineer.
- 1.4 The tenderer **MUST** complete in full the technical schedule.
- 1.5 Apart from the information required in the technical schedule, the tenderer **MUST SUBMIT** comprehensive manufacturer's technical brochures and performance details for all items listed in this schedule (fill forms attached).



**TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED**

(To be completed by the Tenderer. MANDATORY)

ITEM	DESCRIPTION	TYPE/MAKE	MODEL	COUNTRY OF ORIGIN
1	LIGHTING FITTINGS ❖ Slim Batten LED fitting ❖ 2D light luminaire ❖ Ceiling downlight LED fitting			
2	Lighting Switches			
3	Voltage Stabiliser			
4	Socket outlet plates			
5	TV outlet plates			
6	Fire Alarm Control Panel			
7	LV Board			
8	Consumer Units/ Distribution Boards			
9	MCB			
10	MCCB			
11	Cables ❖ single core PVC Copper ❖ Armoured Copper			
12	(PVC/SWA/PVC)  PVC conduits			

**SECTION J:**

**STANDARD FORMS**

**STANDARD FORMS**

**CONTENTS**

<b><u>FORM</u></b>	<b><u>PAGE</u></b>
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2. CONFIDENTIAL BUSINESS QUESTIONNAIRE..... J-2-J-33.	KEY
PERSONNEL.....	J-4
4. CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS	J-5
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7 NAME OF THE BANKERS.....	J-8
8 DETAILS OF LITIGATIONS OR ARBITRATION PROCEEDINGS .....	J-9
9 SCHEDULE OF MAJOR ITEMS OF CONTRACTOR'S EQUIPMENT PROPOSED FOR CARRYING OUT THE WORKS.....	J-10

**NOTE: ALL FORMS IN THIS SECTION MUST BE FILLED AS THEY SHALL BEPART OF THE EVALUATION CRITERIA**

**TENDER QUESTIONNAIRE**

Please fill in block letters.

- 1. Full names of Tenderer:  
.....
  
- 2. Full address of Tenderer to which tender correspondence is to be sent (unless an agent has been appointed below):  
.....
  
- 3. Telephone number (s) of Tenderer:  
.....
  
- 4. Name of Tenderer's representative to be contacted on matters of the tender during the tender period:  
.....

\_\_\_\_\_

Signature of Tenderer

**CONFIDENTIAL BUSINESS QUESTIONNAIRE**

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2(c) and (2d) whichever applies to your type of business.

You are advised that it is a serious offence to give false information on this Form.

***Part 1 – General***

Business Name .....

Location of business premises:           Country/Town.....

Postal Address..... Tel No.....

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time:

Kenya Shillings.....

Name of your bankers.....

Branch.....

***Part 2 (a) – Sole Proprietor***

Your name in full..... Age.....

Nationality..... Country of Origin.....

***Part 2 (b) – Partnership***

*Give details of partners as follows:*

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1.	.....	.....	.....	.....
2.	.....	.....	.....	.....

*Part 2(c) – Registered Company*

Private or Public

..... State

the nominal and issued capita of the company:

Nominal      KShs. ....

Issued        KShs. ....

Give details of all directors as follows:

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details*</i>	<i>Shares</i>
1.	.....	.....	.....	.....
2.	.....	.....	.....	.....
3.	.....	.....	.....	.....
4.	.....	.....	.....	.....

**KEY PERSONNEL**

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

POSITION	NAME	YEARS OF EXPERIENCE (GENERAL)	YEARS OF EXPERIENCE IN PROPOSED POSITION
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

I certify that the above information is correct.

.....  
Title

.....  
Signature

..... Date .....

**CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS**

Work performed on works of a similar nature and volume over the last five years.

<u>PROJECT NAME</u>	<u>NAME OF CLIENT</u>	TYPE OF WORK AND YEAR OF COMPLETION	VALUE OF CONTRACT (Kshs.)

I certify that the above works were successfully carried out and completed by ourselves.

.....  
Title

.....  
Signature

.....  
Date



**FINANCIAL REPORTS FOR THE LAST FIVE YEARS**

(Balance sheets, Profits and Loss Statements, Auditor's reports, etc. List below and attach copies)

1. \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. \_\_\_\_\_.
5. \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.
8. \_\_\_\_\_.
9. \_\_\_\_\_.
10. \_\_\_\_\_.

**EVIDENCE OF FINANCIAL RESOURCES TO MEET QUALIFICATION REQUIREMENTS**  
(Cash in Hand, Lines of credit, e.t.c. List below and attach copies of supportive documents.)

1. \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. \_\_\_\_\_.
5. \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.
8. \_\_\_\_\_.
9. \_\_\_\_\_.
10. \_\_\_\_\_.

**NAME, ADDRESS AND TELEPHONE,**  
(This should be for banks that may provide reference if contacted by the employer)

NAME	ADDRESS	TELEPHONE	EMAIL	ACCOUNT STATION

DETAILS OF LITIGATIONS OR ARBITRATION PROCEEDINGS IN WHICH THE TENDERER IS INVOLVED AS ONE OF THE PARTIES

1. \_\_\_\_\_.
2. \_\_\_\_\_.
3. \_\_\_\_\_.
4. \_\_\_\_\_.
5. \_\_\_\_\_.
6. \_\_\_\_\_.
7. \_\_\_\_\_.
8. \_\_\_\_\_.
9. \_\_\_\_\_.
10. \_\_\_\_\_.

**SCHEDULE OF MAJOR ITEMS OF CONTRACTOR'S EQUIPMENT PROPOSED FOR  
CARRYING OUT THE WORKS**

ITEM OF EQUIPMENT	DESCRIPTION, MAKE AND AGE (Years)	CONDITION (New, good, poor) and number available	OWNED, LEASED (From whom?), or to be purchased (From whom?)